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**Article**

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# Unravelling the Tapestry of Urban Cooperative Bank Failures: An Interpretive Structural Modelling Approach

## ABSTRACT

The financial system in India has exhibited a predominantly resilient nature, with no significant instances of commercial bank failures. Despite being regulated, numerous instances of failure have been observed among urban cooperative banks (UCBs), causing substantial damages to depositors and other stakeholders. The main objective of this research is to determine and investigate the contextual association between the variables that account for the failure of the UCBs in India. The study utilized the interpretive structural modelling (ISM) framework to gain a deeper comprehension of the fundamental factors leading to UCBs' failure. This was achieved by constructing a comprehensive multilevel structural model, incorporating the insights and expertise of domain experts. Utilizing the MICMAC analysis methodology, the various factors were categorized into four distinct groups: autonomous, linkage, dependent, and independent variables. These groups have been formed by conducting a comprehensive evaluation of the factors' interdependencies and their respective driving power within the research context. The result of the research indicates that the factors such as lack of professionalism and skills, political interference, inadequate member participation, and governance issues and frauds hold significant importance and warrant focused attention from authorities to enhance the overall performance of the UCBs. The findings will assist bank managers in identifying the primary factors contributing to their failures, thereby enabling effective monitoring measures to be implemented to prevent any future occurrences of failure among UCBs in India.

## KEY-WORDS

URBAN COOPERATIVE BANK (UCB), INTERPRETIVE STRUCTURAL MODELLING (ISM), CRITICAL FAILURE FACTORS, INDIA

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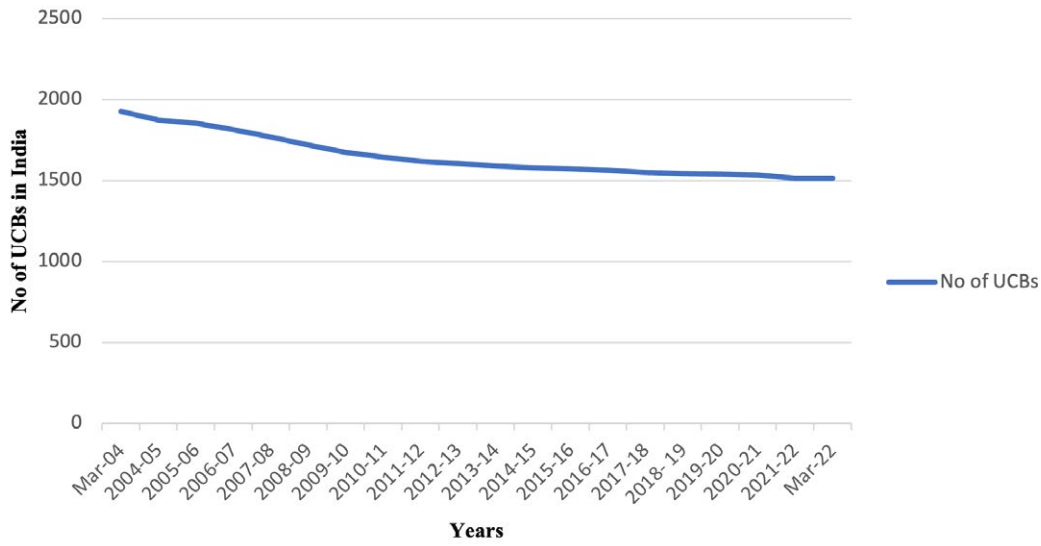
## 1. Introduction

It is common to hear that the banking services industry is what propels a nation's economic expansion. It simplifies the procedure of funds transfer from excess to shortage areas of the financial system. Over 60% of household savings and roughly 90% of commercial loans in India are provided by the banking sector (Sengupta and Vardhan, 2017). Because of this reliance, the banking industry's health has a big impact on overall economic growth (Gandhi, 2014). With a focus on urban areas where a sizable portion of the population relies on these institutions to meet their financial needs, the urban cooperative banking industry contributes significantly to the promotion of economic growth and financial inclusion (Agarwal, 2020). It also acts as an intermediary for last-mile credit delivery. However, a notable escalation has been observed in the occurrence of urban cooperative bank (UCB) failures in India as shown in Figure 1 (Reserve Bank of India, 2023). The collapse of these financial institutions not only presents considerable challenges to depositors and borrowers but also engenders inquiries regarding the cooperative banking system's overarching stability and long-term viability. In recent years, this sector has suffered from many difficulties, e.g., low capital base, corporate governance issues, and growing incidence of fraudulent activities (Babu, 2012). Besides these issues, dual regulation of the Reserve Bank of India (RBI) and state government on cooperative banks also plays a very significant role in its failure (Sapovadia, 2019). Additionally, non-performing assets (NPA), political interference, lack of professionalism, a poor resource base, and conservative credit policy restrict the growth of UCBs in India (Mitra, 2012).

**Figure 1. Number of UCBs in India**




*Source:* Adapted from RBI (2023: 97).

According to RBI (2023), approximately one-third of newly licensed UCBs faced failure over the years, primarily attributed to structural fragility and financial issues. The cancellation of licenses for 10 UCBs in 2021-2022, contributed to a total of 54 licenses revoked since 2015-2016. UCBs experienced a deceleration in asset size during 2021-2022. Notably, deposits also contracted for the first time in nearly two decades, leading to a decline in UCBs' balance sheets. The imposition of penalties surged to 145 in 2021-2022, compared to 43 in the previous year, with a corresponding increase in the penalty amount by 211. Furthermore, UCBs were rated in the "B" category for both volumes of business (total deposits and advances) and overall management quality under the CAMELS (capital adequacy, asset quality, management, eanings, liquidity, and systems and control) based assessment system.

This trend raised a question about UCBs' financial viability and corporate governance. Despite this, they continue to have a reasonable socioeconomic impact, considering they deal with many clients who come from lower- to middle-class backgrounds in India.

There have been many research studies that endeavour to determine the variables that led to UCB failure in India as shown in Table 1. The previous research only focuses on variables in isolation, disregarding the effect they may have on one another. This research makes an effort to build an extensive framework that not only identifies the failure reasons but also establishes their interrelationships using the interpretive structural modelling (ISM) framework. The researchers believe that understanding the different variables that contribute to the occurrence of failures in UCBs holds paramount importance for policymakers, regulators, and stakeholders who are actively engaged in ensuring the financial sector's stability.

A comprehensive analysis is necessary to consider the complex interaction of numerous external and internal variables that contribute to UCB's failures. The determination of the contributing factors to the failure of UCBs is a multifaceted and ever-evolving scenario. The investigation of all factors necessitates a substantial investment of time. When considering the investigation of relationships between factors, the complexity of the analysis is further heightened. Thus, the main objectives of this study are:

- To determine critical variables that are responsible for the failure of UCBs in India.
- To investigate and establish the interrelationships that exist among these failure factors.
- To develop a comprehensive structural model that encompasses the various factors contributing to failure.
- To categorize the identified critical failure factors into various groups.

**Table 1. Literature supports the identified failure factors of UCBs in India**

| Title | Authors & year | Issues & challenges |
|---|---|---|
| *Performance evaluation of urban cooperative banks in India* | Babu, 2012 | Rising competition, scams, low capital base, no clear-cut loan and investment policy, piling of (NPAs), dual control, poor governance, uneven geographical dispersal |
| *NPA management of urban co-operative banks: A study in Hooghly district of West Bengal* | Mitra, 2012 | Swelling NPA, poor resource base, conservative credit policy, political interference, lack of professional management |
| *Emerging issues of urban co-operative banks in India* | Alam, 2016 | Lack of viability, resource mobilization, monopolisation of bank resources by a small group of people that include mainly relatives and friends of directors, lack of proper control and supervision, lack of professionalism, lack of a techno-savvy environment |
| *A study on risk management in co-operative banks in India: A descriptive analysis* | Sushmitha and Nagaraja, 2019 | Volatile market conditions, technological advancement, changing customer needs, financial sector reforms, NPAs |
| *Corporate governance in urban co-operative banks: An Indian perspective* | Behera, 2014 | Political interference, poor corporate governance, low capital base |
| *Pleonexia and politics over professionalism: Collapsing cooperative banks* | Sapovadia, 2019 | Lack of professionalism, dual control, obsolete monitoring and control, trust deficit, overconfidence of borrower and management, temptation and profiteering motive, speculative motive, politician's intervention, restrictions on credit |
| *When and why cooperative banks fail? The case of urban cooperative banks in India* | Kumar and Srivastava, 2020 | Governance issues and frauds, asset quality, liquidity issues, regulatory violations |

*Source*: Authors' own elaboration.

ISM is a suitable approach to be utilized in such situations where an overall structure needs to be derived for a given system, based on the interrelationships between its factors (Ahmad and Qahmash, 2021). While numerous research studies have applied the ISM technique in the banking sector for diverse applications as shown in Table 2, an important gap exists regarding its application to analyse failure factors of UCBs. Therefore, this study pioneers the application of the ISM methodology to scrutinize critical failure factors contributing to UCB failures in India. The assessment further classifies these factors based on their driving and dependence power, offering nuanced insights into the root causes and dynamics of such failures. This analytical approach not only enhances understanding but also equips concerned authorities with actionable information to formulate effective strategies for mitigating risks associated with UCBs, thereby fostering a more resilient urban cooperative banking system.

**Table 2. Synthesis of literature using ISM methodology in the banking sector**

| Title | Authors & year | Application |
|---|---|---|
| *Modelling the barriers to online banking in the Indian scenario: An ISM approach* | Katiyar and Badola, 2018 | Online banking barriers |
| *Interpretive structural modeling of critical success factors in banking process re-engineering* | Salimifard, Abbaszadeh and Ghorbanpur, 2010 | Banking process re-engineering success factors |
| *A hierarchical model of the determinants of non-performing assets in banks: An ISM and MICMAC approach* | Rizvi et al., 2019 | Determinants of NPAs in banks of India |
| *Identifying decisive socio-political sustainability barriers in the supply chain of banking sector in India: Causality analysis using ISM and MICMAC* | Chen et al., 2021 | Socio-political sustainability barriers in the banking sector of India |
| *Analysis of key barriers in blockchain in banking: ISM ranking approac*h | Shukla and Balwani, 2022 | Barriers to implementing blockchain technology in the banking sector |
| *Determinants of sustainable growth in Indian banking industry: An ISM approach* | Dogra and Adil, 2022 | Determinants of sustainable growth in the banking sector |

*Source*: Authors' own elaboration.

## 2. Present status of UCBs in India

UCBs are primary cooperative banks providing services to urban and semi-urban areas, originally formed to cater to consumption-oriented credit needs within communities. The first UCB was founded in 1904 in Kanjivaram (Gnanasekaran and Anbalagan, 2011) and it served small borrowers and local businesses, fostering close-knit relationships within communities, neighbourhoods and workplace groups (Vishwam and Chandrashekar, 2017). Until 1996, UCBs were restricted from lending money for agricultural purposes, but this is no longer applicable today. Primary credit societies in urban areas that meet specific criteria can apply for a banking license from the RBI to act as UCBs. These banks operate under the cooperative societies acts of respective states and the Banking Regulation Act of 1949, subjecting them to dual regulatory control (Das, 2020). The RBI oversees aspects such as lending requirements, risk mitigation, and capital adequacy, whereas crisis resolution and management come under the purview of the Registrar of Cooperative Societies, affiliated with either the state or federal government. Recently, the RBI updated the Supervisory Action Framework for UCBs and the central government passed an ordinance that places all urban and multi-state cooperative banks immediately under RBI oversight, indicating a significant regulatory change (RBI, 2020).

**Table 3. CRAR-wise distribution of UCBs (as of March 31, 2022)**

| | Scheduled UCBs | Non-scheduled UCBs | All UCBs |
|---|---|---|---|
| CRAR < 3 | 4 | 58 | 62 |
| 3< = CRAR < 6 | 0 | 12 | 12 |
| 6 < = CRAR < 9 | 0 | 16 | 16 |
| 9 < = CRAR < 12 | 7 | 115 | 122 |
| 12< = CRAR | 41 | 1,261 | 1,302 |
| Total | 52 | 1,462 | 1,514 |

*Source*: RBI (2023).

**Table 4. Earnings-related parameters of UCBs (as of March 31, 2022)**

| Financial indicators (%) | Scheduled UCBs | | Non-scheduled UCBs | | All UCBs | |
|---|---|---|---|---|---|---|
| | 2020-21 | 2021-22 | 2020-21 | 2021-22 | 2020-21 | 2021-22 |
| Return on assets | 0.19 | 0.50 | 0.28 | 0.38 | 0.24 | 0.43 |
| Return on equity | 2.94 | 6.88 | 3.22 | 4.21 | 3.11 | 5.27 |
| Net interest margin | 2.01 | 2.39 | 2.67 | 2.94 | 2.36 | 2.69 |

*Source*: RBI (2023).

**Table 5. Asset quality in UCBs (as of March 31, 2022)**

| Items (%) | Scheduled UCBs | | Non-scheduled UCBs | | All UCBs | |
|---|---|---|---|---|---|---|
| | 2020-21 | 2021-22 | 2020-21 | 2021-22 | 2020-21 | 2021-22 |
| Gross NPA ratio | 10.5 | 7.5 | 13.4 | 11.6 | 12.1 | 9.7 |
| Net NPA ratio | 4.3 | 3.0 | 7.0 | 5.6 | 5.8 | 4.4 |
| Coverage ratio | 63.4 | 65.4 | 56.0 | 61.5 | 58.9 | 62.9 |

*Source*: RBI (2023).

**Table 6. Distribution of supervisory ratings of UCBs (as of March 31, 2022)**

| Ratings | No. of UCBs | Share in total (%) | Deposits (₹ crores) | Share in total (%) | Advances (₹ crores) | Share in total (%) |
|---|---|---|---|---|---|---|
| A | 153 | 10.1 | 30,240 | 5.7 | 17,190 | 5.5 |
| B+ | 203 | 13.4 | 83,152 | 15.8 | 49,642 | 15.8 |
| B | 740 | 48.9 | 2,50,292 | 47.6 | 1,52,571 | 48.5 |
| C | 345 | 22.8 | 1,48,925 | 28.3 | 85,794 | 27.3 |
| D | 73 | 4.8 | 13,411 | 2.5 | 9,545 | 3.0 |
| Total | 1,514 | 100.00 | 5,26,021 | 100.00 | 3,14,741 | 100.00 |

*Source*: RBI (2023).

In terms of financial performance, UCBs have shown improvement in key indicators of profitability, such as return on assets and net return on equity, as evident from Table 4. Additionally, the asset quality of UCBs demonstrated a positive shift in 2022, overcoming the previous decline from 2015-2016 to 2020-2021, as seen in the gross non-performing assets (GNPA) ratio reflected in Table 5. At the end of March 2022, an impressive 94% of UCBs maintained a capital-to-risk-weighted assets ratio above the regulatory minimum of 9%, underscoring their financial strength (Table 3). Despite certain banks within the UCB sector facing financial difficulties, the overall reported financials of the sector portray a promising picture in terms of capital adequacy ratio (CRAR), earnings, asset quality, and supervisory ratings, as depicted in Tables 4 to 6. Subsequently, UCBs continue to serve as pillars of support for local economies, fostering community connections and contributing to India's financial growth. Their adaptability to changing regulations and focus on strengthening financial fundamentals position them as valuable players in India's banking landscape.

## 3. Literature review

The currently available literature suggests that the failure of cooperative banks and credit unions can be attributed to various factors. These include a low level of capital, poor governance standards, a shortage of trained managers, ineffective lending and collection operations, inadequate record-keeping practices, scale inefficiency, elevated levels of bad debt, limited interest in merger and amalgamation activities, insufficient risk management measures, weak financial management practices, the influence of external economic factors, inadequate member participation, social and political interference, and inadequate technological adoption. Despite the limited amount of research conducted on cooperative banks globally, and even less so in the specific context of India, it is important to acknowledge that there is still a significant gap in the understanding of this topic.

**Table 7. Summary of failure factors according to the literature review**

| | Failure factors | Description | References |
|---|---|---|---|
| A1 | Low level of capital | Insufficient capitalization is a significant failure factor for UCBs, leading to limited ability to absorb losses, expand operations and meet regulatory requirements. This can result in weakened financial stability and hinder the bank's ability to fulfil its obligations. | Pitre (2003), Asher (2007), Chander and Chandel (2010), Babu (2012), Kumar and Srivastava (2020), Singhal and Chauhan (2021) |
| A2 | Governance issues and frauds | Camouflaged director-related loans, poor governance practices, and mismanagement, including ineffective board composition, misappropriation of funds, manipulated books of accounts, fraudulent entries in branch adjustment accounts, preferential payments, fraudulent loans and guarantees, lack of transparency can undermine the decision-making process and strategic direction of UCBs. This failure factor highlights the importance of robust governance frameworks for sustainable banking operations. | Pitre (2003), Asher (2007), Ramu (2008), Chander and Chandel (2010), Talla, Bethapudi and Reddy (2013), Kumar and Srivastava (2020), Singhal and Chauhan (2021) |
| A3 | Lack of professionalism and skills | The absence of skilled and experienced managers in UCBs can hinder effective decision-making, risk management, and strategic planning. Insufficient training and professional development opportunities may contribute to a lack of expertise required to navigate challenges and adapt to dynamic market conditions, potentially leading to poor performance and eventual failure. | Pitre (2003), Asher (2007), Ramu (2008), Chander and Chandel (2010), Ramachandran and Shanmugam (2012), Talla, Bethapudi and Reddy (2013), Kumar and Srivastava (2020) |
| A4 | Liquidity issues | Depositors' run, failure to meet payment obligations, poor quality of non-statutory liquidity ratio (SLR) investments portfolio, inadequate credit appraisal, weak monitoring of loans and inefficient collection processes can result in a high proportion of NPAs in UCBs. This failure factor emphasizes the importance of robust credit risk management, loan recovery mechanisms, and proactive measures to minimize the impact of defaulting borrowers on the bank's financial health. | Pitre (2003), Asher (2007), Ramu (2008), Chander and Chandel (2010), Ramachandran and Shanmugam (2012), Talla, Bethapudi and Reddy (2013), Bardhan and Mukherjee (2016), Kumar and Srivastava (2020), Singhal and Chauhan (2021) |
| A5 | Inadequate record-keeping practices | Poor record-keeping practices, including incomplete documentation, inaccurate data maintenance, and inadequate information systems can hamper the operational efficiency, risk assessment, and financial reporting of UCBs. This factor highlights the significance of robust record-keeping practices for ensuring transparency, compliance and informed decision-making. | Pitre (2003), Asher (2007), Kumar and Srivastava (2020), Singhal and Chauhan (2021) |
| A6 | Scale inefficiency | Inefficient utilization of resources, suboptimal allocation of funds and inadequate productivity levels can lead to scale inefficiency in UCBs. This failure factor emphasizes the importance of optimizing operational processes, enhancing productivity and achieving economies of scale to improve the bank's financial performance and long-term sustainability. | Pitre (2003), Asher (2007), Kumar and Srivastava (2020) |

| | | | |
|---|---|---|---|
| A7 | Elevated levels of bad debt | High levels of bad debt, represented by non-performing loans (NPLs) and defaults can significantly impair the financial health and stability of UCBs. Inadequate credit risk management, poor loan recovery practices and economic factors contribute to this failure factor, highlighting the importance of prudent lending practices and effective NPL management. | Pitre (2003), Asher (2007), Ramu (2008), Chander and Chandel (2010), Kumar and Srivastava (2020), Singhal and Chauhan (2021) |
| A8 | Limited interest in merger and amalgamation activities | The lack of enthusiasm and participation in merger and amalgamation activities within the urban cooperative banking sector restricts opportunities for consolidation, synergies and enhanced financial stability. This factor emphasizes the potential benefits of strategic partnerships, consolidation efforts and mergers for strengthening the overall health of UCBs. | Asher (2007), Ramachandran and Shanmugam (2012), Kumar and Srivastava (2020) |
| A9 | Insufficient risk management measures | Inadequate risk management practices, including weak credit assessment, lack of risk identification and monitoring mechanisms, and insufficient capital buffers can expose UCBs to elevated levels of risk. This factor highlights the importance of robust risk management frameworks, stress testing and prudent risk mitigation strategies for financial stability. | Pitre (2003), Asher (2007), Ramu (2008), Chander and Chandel (2010), Talla, Bethapudi and Reddy (2013), Kumar and Srivastava (2020), Singhal and Chauhan (2021) |
| A10 | Weak financial management practices | Ineffective financial management practices, including inadequate liquidity management, weak treasury operations and improper cash flow management can significantly impact the financial performance and stability of UCBs. This factor emphasizes the importance of sound financial management practices and effective asset-liability management (ALM) frameworks. | Pitre (2003), Asher (2007), Ramu (2008), Ramu (2009), Chander and Chandel (2010), Talla, Bethapudi and Reddy (2013), Kumar and Srivastava (2020), Singhal and Chauhan (2021) |
| A11 | Inadequate member participation | Limited involvement and engagement of members, including customers, borrowers and stakeholders can hinder the growth, support and sustainability of UCBs. This factor emphasizes the importance of fostering active member participation, encouraging member representation and establishing effective communication channels to strengthen the cooperative banking model. | Khan (2018), Srivastava and Saxena (2020) |
| A12 | Political interference | The nomination of top officials, political unrest, lending to priority sectors and frequent transfers of officials are all examples of political interference. This can lead to compromised decision-making, favouritism and misallocation of resources. This failure factor highlights the negative impact of external influences on the autonomy, transparency and effectiveness of cooperative banking institutions. | Bonin and Huang (2001), Lu, Thangavelu and Hu (2001), Micco, Panizza and Yanez (2007), Ramu (2008), Rajeev and Mahesh (2010), Sengupta and Vardhan (2017), Rajan (2017), Singhal and Chauhan (2021) |
| A13 | Inadequate technological adoption or modernization | The development of new products, the decline in transaction costs and improved operational efficiency are examples of technological aspects. Insufficient adoption of technological advancements and digitalization can result in operational inefficiencies, limited access to digital services and an inability to meet customer expectations. This factor emphasizes the importance of embracing technology to enhance operational efficiency, customer experience and overall competitiveness in the banking sector. | Pitre (2003), Rajan and Dhal (2003), Ataullah, Cockerill and Le (2004), Asher (2007), Ramu (2008), Talla, Bethapudi and Reddy (2013), Deokar, Pandey and Tilak (2013), Ogutu (2018) |

*Source*: Authors' own elaboration.

## 4. Methodology

This study used the ISM technique to uncover Indian UCBs' failure factors and their relationships. Based on an extensive literature review 13 failure factors were found, which were further discussed with professionals, academics, and practitioners to establish their applicability in the context of the Indian cooperative bank. Professionals were consulted to ascertain the association between these factors through interviews. Ritchie and Lewis (2003) suggested that qualitative research samples should be under 50. This study contacted 15 academicians and cooperative banking professionals. Saturation occurs after these interviews because no new participants generate new ideas. Purposeful sampling was utilized to acquire banking services experts based on their skills. To assess the expertise, academics, and professionals were approached. The panel includes five UCB administrators and 10 faculty members from prestigious institutions. The contextual link between these variables was investigated by interview. Table 1 labels all the failure factors as A1, A2, and A3 for clarity. To find a correlation, professionals were requested to do a pairwise comparison of the variables. Interviews were conducted separately to remove any biases. According to Ma et al. (2019), consensus analysis was used to mitigate professionals' subjectivity and validate data. After reviewing all replies, the professional's consent was used to develop interpretive structural models.

### *4.1 Interpretive structural modelling*

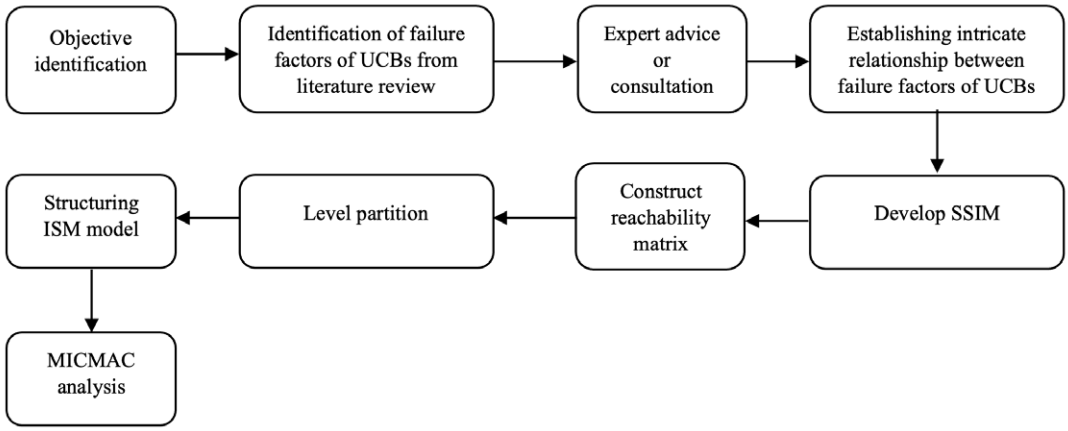
ISM serves as an effective tool for making decisions by facilitating the construction of a comprehensive structural model based on a collection of factors that exert an impact on the implementation of a specific structure (Vasanthakumar, Vinodh and Ramesh, 2016). The theoretical framework of ISM draws upon the expertise of scholars, professors, and the practical insights of professionals to analyse the relationships of factors and construct a comprehensive structural model. This approach is crucial, as it enables the insights of scholars and professionals to explain the association between various constitutes, resulting in a transparent and well-articulated model. Furthermore, the graphical representation of connections and structure serves as a means of illustrating the modelling procedure (Pitchaimuthu, Thakkar and Gopal, 2019). The present investigation utilizes the interpretive structural modelling methodology due to its capacity to comprehensively analyse the various factors under consideration, as opposed to conducting examinations of each factor in isolation. Following is an attempt to summarize the various phases of the intricate process of ISM:

- *Step 1.* The initial stage involves the determination of critical factors responsible for the ineffectiveness or failure of UCBs in India. This can be achieved through a comprehensive examination of existing literature and seeking expert opinions in this field.
- *Step 2.* The second step involves the creation of a structural self-interaction matrix (SSIM), which serves as a tool to elucidate the pairwise associations among the identified factors.
- *Step 3.* Moving on to the third step, the initial reachability matrix is created from SSIM by

replacing it with binary numbers (0, 1) based on some predefined rules. After that, the final reachability matrix is created to remove transitivity, which means that if there is a relationship between two entities, say n and m, and another relationship between m and p, then it implies that n should also exhibit a relationship with p.

- *Step 4.* Once the reachability matrices are in place, the partitioning process is conducted to assign ranks to the various factors identified earlier.
- *Step 5.* Moving forward, an ISM-based framework is developed, aiming to expound on the intricate interconnections between the different variables.
- *Step 6.* Finally, MICMAC analysis is applied, allowing for the assessment of the specific driving and dependence power displayed by each component of the overall system. This step helps in understanding the driving and dependency dynamics between the identified factors.

**Figure 2. Flow chart for ISM technique**




*Source*: Authors' own elaboration.

## 5. Model development

### *5.1. Structural self-interaction matrix*

The relationships between variables in pairs are shown using the SSIM. The aggregate knowledge of academics, educators, and cooperative bank experts in the pertinent field was used to determine the contextual link between these variables. To indicate the correlation between two variables, the criteria "n leads to m" was selected where n represents the variable in the column and m represents the variable in the row (Table 8). This means that the experts were consulted to assess the potential

influence of factor n on factor m and vice versa. All conceivable combinations of critical failure factors were provided, and the experts were asked to elucidate the intricate relationship between the variables labelled as n and m using a set of four symbols: V, A, X and O.

- V: Variable m is influenced by variable n.
- A: Variable n is influenced by variable m.
- X: Variable m and variable n exhibit a mutual influence.
- O: Variables m and n are unrelated to each other.

As shown in Table 6, the SSIM was developed using the knowledge and suggestions obtained from subject matter experts.

**Table 8. Structural self-interaction matrix**

| | **A13** | **A12** | **A11** | **A10** | **A9** | **A8** | **A7** | **A6** | **A5** | **A4** | **A3** | **A2** | **A1** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **A1** | V | A | A | A | A | O | A | V | A | A | A | A | |
| **A2** | V | A | A | V | V | O | V | V | X | V | A | | |
| **A3** | V | A | A | V | V | O | V | V | V | V | | | |
| **A4** | V | A | A | A | A | O | X | V | A | | | | |
| **A5** | V | A | A | V | V | O | V | V | | | | | |
| **A6** | A | A | A | A | A | A | A | | | | | | |
| **A7** | V | A | A | A | A | O | | | | | | | |
| **A8** | O | O | O | O | O | | | | | | | | |
| **A9** | V | A | A | X | | | | | | | | | |
| **A10** | V | A | A | | | | | | | | | | |
| **A11** | V | A | | | | | | | | | | | |
| **A12** | V | | | | | | | | | | | | |
| **A13** | | | | | | | | | | | | | |

*5.2. Reachability matrix*

The SSIM is transformed into a binary matrix known as the reachability matrix through a conversion process. During this transformation, the symbols V, A, X and O in the SSIM are replaced with binary values of 1 and 0 based on specific conditions. The SSIM is used to create the reachability matrix based on the following standards:

- *In the context of the SSIM, when the entry at position (n, m) signifies V, the corresponding entries in the reachability matrix are set to 1 and 0 for (n, m) and (m, n) respectively.*
- *If the SSIM entry at (n, m) indicates A, the reachability matrix entries for (n, m) and (m, n) are set to 0 and 1 respectively.*
- *If the SSIM entry at (n, m) represents X, both the (n, m) and (m, n) entries in the reachability matrix are set to 1.*
- *If the (n, m) entry in the SSIM denotes O, then the reachability matrix sets both the (n, m) and (m, n) entries to 0.*

After following the specified criteria and incorporating transitivity, the final reachability matrix is presented in Table 9. This matrix offers insightful data on the driving and dependence power of each failure factor. The driving power signifies the extent to which a specific variable can contribute to achieving various outcomes, while the dependence power denotes the number of variables that can contribute to achieving the specified variable. This power further helps in performing MICMAC analysis which classified all the failure factors into four groups: dependent, independent, linkage and autonomous variables.

**Table 9. Final reachability matrix**

| | A1 | A2 | A3 | A4 | A5 | A6 | A7 | A8 | A9 | A10 | A11 | A12 | A13 | Driving power |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **A1** | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 |
| **A2** | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 9 |
| **A3** | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 10 |
| **A4** | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 5 |
| **A5** | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 9 |
| **A6** | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| **A7** | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 5 |
| **A8** | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 |
| **A9** | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 7 |
| **A10** | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 7 |
| **A11** | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 11 |
| **A12** | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 12 |
| **A13** | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 |
| **Dependence power** | 10 | 5 | 3 | 9 | 5 | 13 | 9 | 1 | 7 | 7 | 2 | 1 | 11 | |

### *5.3. Level partitions*

The final reachability matrix was utilized to determine the antecedent set and reachability set for each variable at this stage. The reachability set encompasses not only the variable itself but also others it can potentially influence. Conversely, the antecedent set includes itself along with additional ones expected to contribute to its occurrence. For instance, consider factor A1 with a driving power of 3; its reachability set comprises factors A1, A6 and A13. Withs dependence power of 10, the antecedent set for A1 includes A1, A2, A3, A4, A5, A7, A9, A10, A11 and A12 (Table 9). The collection of variables present in both the reachability and antecedent sets is known as the intersection set. The intersection set for factor A1 includes A1, highlighting shared elements in the reachability and antecedent sets (Table 10). Subsequently, the levels in the ISM hierarchy are determined by examining instances where the intersection set aligns with the reachability set. In iteration 1, only factor A6 fulfils this criterion, placing it at level 1. Factors meeting this condition attain top-level (level 1), signifying that they do not contribute to the progression of other factors above their current position. Once a top-level factor is identified, it is isolated, and the process iterates, allowing all other components to ascend the ISM hierarchy until reaching their respective positions or levels. This iterative cycle was conducted through a series of nine iterations in this example. The results of each iteration are presented in Tables 10 to 18.

**Table 10. First iteration for the partitioning of levels**

| Factors | Reachability set | Antecedent set | Intersection set | Level |
|---|---|---|---|---|
| **1** | 1, 6, 13 | 1, 2, 3, 4, 5, 7, 9, 10, 11, 12 | 1 | |
| **2** | 1, 2, 4, 5, 6, 7, 9, 10, 13 | 2, 3, 5, 11, 12 | 2, 5 | |
| **3** | 1, 2, 3, 4, 5, 6, 7, 9, 10, 13 | 3, 11, 12 | 3 | |
| **4** | 1, 4, 6, 7, 13 | 2, 3, 4, 5, 7, 9, 10, 11, 12 | 4, 7 | |
| **5** | 1, 2, 4, 5, 6, 7, 9, 10, 13 | 2, 3, 5, 11, 12 | 2, 5 | |
| **6** | 6 | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13 | 6 | 1 |
| **7** | 1, 4, 6, 7, 13 | 2, 3, 4, 5, 7, 9, 10, 11, 12 | 4, 7 | |
| **8** | 6, 8 | 8 | 8 | |
| **9** | 1, 4, 6, 7, 9, 10, 13 | 2, 3, 5, 9, 10, 11, 12 | 9, 10 | |
| **10** | 1, 4, 6, 7, 9, 10, 13 | 2, 3, 5, 9, 10, 11, 12 | 9, 10 | |
| **11** | 1, 2, 3, 4, 5, 6, 7, 9, 10, 11, 13 | 11, 12 | 11 | |
| **12** | 1, 2, 3, 4, 5, 6, 7, 9, 10, 11, 12, 13 | 12 | 12 | |
| **13** | 6, 13 | 1, 2, 3, 4, 5, 7, 9, 10, 11, 12, 13 | 13 | |

**Table 11. Iteration (2)**

| Factors | Reachability set | Antecedent set | Intersection set | Level |
|---|---|---|---|---|
| **1** | 1, 13 | 1, 2, 3, 4, 5, 7, 9, 10, 11, 12 | 1 | |
| **2** | 1, 2, 4, 5, 7, 9, 10, 13 | 2, 3, 5, 11, 12 | 2, 5 | |
| **3** | 1, 2, 3, 4, 5, 7, 9, 10, 13 | 3, 11, 12 | 3 | |
| **4** | 1, 4, 7, 13 | 2, 3, 4, 5, 7, 9, 10, 11, 12 | 4, 7 | |
| **5** | 1, 2, 4, 5, 7, 9, 10, 13 | 2, 3, 5, 11, 12 | 2, 5 | |
| **6** | | 1, 2, 3, 4, 5, 7, 8, 9, 10, 11, 12, 13 | | 1 |
| **7** | 1, 4, 7, 13 | 2, 3, 4, 5, 7, 9, 10, 11, 12 | 4, 7 | |
| **8** | 8 | 8 | 8 | 2 |
| **9** | 1, 4, 7, 9, 10, 13 | 2, 3, 5, 9, 10, 11, 12 | 9, 10 | |
| **10** | 1, 4, 7, 9, 10, 13 | 2, 3, 5, 9, 10, 11, 12 | 9, 10 | |
| **11** | 1, 2, 3, 4, 5, 7, 9, 10, 11, 13 | 11, 12 | 11 | |
| **12** | 1, 2, 3, 4, 5, 7, 9, 10, 11, 12, 13 | 12 | 12 | |
| **13** | 13 | 1, 2, 3, 4, 5, 7, 9, 10, 11, 12, 13 | 13 | 2 |

**Table 12. Iteration (3)**

| Factors | Reachability set | Antecedent set | Intersection set | Level |
|---|---|---|---|---|
| **1** | 1 | 1, 2, 3, 4, 5, 7, 9, 10, 11, 12 | 1 | 3 |
| **2** | 1, 2, 4, 5, 7, 9, 10 | 2, 3, 5, 11, 12 | 2, 5 | |
| **3** | 1, 2, 3, 4, 5, 7, 9, 10 | 3, 11, 12 | 3 | |
| **4** | 1, 4, 7 | 2, 3, 4, 5, 7, 9, 10, 11, 12 | 4, 7 | |
| **5** | 1, 2, 4, 5, 7, 9, 10 | 2, 3, 5, 11, 12 | 2, 5 | |
| **6** | | 1, 2, 3, 4, 5, 7, 9, 10, 11, 12 | | 1 |
| **7** | 1, 4, 7 | 2, 3, 4, 5, 7, 9, 10, 11, 12 | 4, 7 | |
| **8** | | | | 2 |
| **9** | 1, 4, 7, 9, 10 | 2, 3, 5, 9, 10, 11, 12 | 9, 10 | |
| **10** | 1, 4, 7, 9, 10 | 2, 3, 5, 9, 10, 11, 12 | 9, 10 | |
| **11** | 1, 2, 3, 4, 5, 7, 9, 10, 11 | 11, 12 | 11 | |
| **12** | 1, 2, 3, 4, 5, 7, 9, 10, 11, 12 | 12 | 12 | |
| **13** | | 1, 2, 3, 4, 5, 7, 9, 10, 11, 12 | | 2 |

**Table 13. Iteration (4)**

| Factors | Reachability set | Antecedent set | Intersection set | Level |
|---|---|---|---|---|
| **1** | | 2, 3, 4, 5, 7, 9, 10, 11, 12 | | 3 |
| **2** | 2, 4, 5, 7, 9, 10 | 2, 3, 5, 11, 12 | 2, 5 | |
| **3** | 2, 3, 4, 5, 7, 9, 10 | 3, 11, 12 | 3 | |
| **4** | 4, 7 | 2, 3, 4, 5, 7, 9, 10, 11, 12 | 4, 7 | 4 |
| **5** | 2, 4, 5, 7, 9, 10 | 2, 3, 5, 11, 12 | 2, 5 | |
| **6** | | 2, 3, 4, 5, 7, 9, 10, 11, 12 | | 1 |
| **7** | 4, 7 | 2, 3, 4, 5, 7, 9, 10, 11, 12 | 4, 7 | 4 |
| **8** | | | | 2 |
| **9** | 4, 7, 9, 10 | 2, 3, 5, 9, 10, 11, 12 | 9, 10 | |
| **10** | 4, 7, 9, 10 | 2, 3, 5, 9, 10, 11, 12 | 9, 10 | |
| **11** | 2, 3, 4, 5, 7, 9, 10, 11 | 11, 12 | 11 | |
| **12** | 2, 3, 4, 5, 7, 9, 10, 11, 12 | 12 | 12 | |
| **13** | | 2, 3, 4, 5, 7, 9, 10, 11, 12 | | 2 |

**Table 14. Iteration (5)**

| Factors | Reachability set | Antecedent set | Intersection set | Level |
|---|---|---|---|---|
| **1** | | 2, 3, 5, 9, 10, 11, 12 | | 3 |
| **2** | 2, 5, 9, 10 | 2, 3, 5, 11, 12 | 2, 5 | |
| **3** | 2, 3, 5, 9, 10 | 3, 11, 12 | 3 | |
| **4** | | 2, 3, 5, 9, 10, 11, 12 | | 4 |
| **5** | 2, 5, 9, 10 | 2, 3, 5, 11, 12 | 2, 5 | |
| **6** | | 2, 3, 5, 9, 10, 11, 12 | | 1 |
| **7** | | 2, 3, 5, 9, 10, 11, 12 | | 4 |
| **8** | | | | 2 |
| **9** | 9, 10 | 2, 3, 5, 9, 10, 11, 12 | 9, 10 | 5 |
| **10** | 9, 10 | 2, 3, 5, 9, 10, 11, 12 | 9, 10 | 5 |
| **11** | 2, 3, 5, 9, 10, 11 | 11, 12 | 11 | |
| **12** | 2, 3, 5, 9, 10, 11, 12 | 12 | 12 | |
| **13** | | 2, 3, 5, 9, 10, 11, 12 | | 2 |

**Table 15. Iteration (6)**

| Factors | Reachability set | Antecedent set | Intersection set | Level |
|---|---|---|---|---|
| **1** | | 2, 3, 5, 11, 12 | | 3 |
| **2** | 2, 5 | 2, 3, 5, 11, 12 | 2, 5 | 6 |
| **3** | 2, 3, 5 | 3, 11, 12 | 3 | |
| **4** | | 2, 3, 5, 11, 12 | | 4 |
| **5** | 2, 5 | 2, 3, 5, 11, 12 | 2, 5 | 6 |
| **6** | | 2, 3, 5, 11, 12 | | 1 |
| **7** | | 2, 3, 5, 11, 12 | | 4 |
| **8** | | | | 2 |
| **9** | | 2, 3, 5, 11, 12 | | 5 |
| **10** | | 2, 3, 5, 11, 12 | | 5 |
| **11** | 2, 3, 5, 11 | 11, 12 | 11 | |
| **12** | 2, 3, 5, 11, 12 | 12 | 12 | |
| **13** | | 2, 3, 5, 11, 12 | | 2 |

**Table 16. Iteration (7)**

| Factors | Reachability set | Antecedent set | Intersection set | Level |
|---|---|---|---|---|
| **1** | | 3, 11, 12 | | 3 |
| **2** | | 3, 11, 12 | | 6 |
| **3** | 3 | 3, 11, 12 | 3 | 7 |
| **4** | | 3, 11, 12 | | 4 |
| **5** | | 3, 11, 12 | | 6 |
| **6** | | 3, 11, 12 | | 1 |
| **7** | | 3, 11, 12 | | 4 |
| **8** | | | | 2 |
| **9** | | 3, 11, 12 | | 5 |
| **10** | | 3, 11, 12 | | 5 |
| **11** | 3, 11 | 11, 12 | 11 | |
| **12** | 3, 11, 12 | 12 | 12 | |
| **13** | | 3, 11, 12 | | 2 |

**Table 17. Iteration (8)**

| Factors | Reachability set | Antecedent set | Intersection set | Level |
|---|---|---|---|---|
| **1** | | 11, 12 | | 3 |
| **2** | | 11, 12 | | 6 |
| **3** | | 11, 12 | | 7 |
| **4** | | 11, 12 | | 4 |
| **5** | | 11, 12 | | 6 |
| **6** | | 11, 12 | | 1 |
| **7** | | 11, 12 | | 4 |
| **8** | | | | 2 |
| **9** | | 11, 12 | | 5 |
| **10** | | 11, 12 | | 5 |
| **11** | 11 | 11, 12 | 11 | 8 |
| **12** | 11, 12 | 12 | 12 | |
| **13** | | 11, 12 | | 2 |

**Table 18. Iteration (9)**

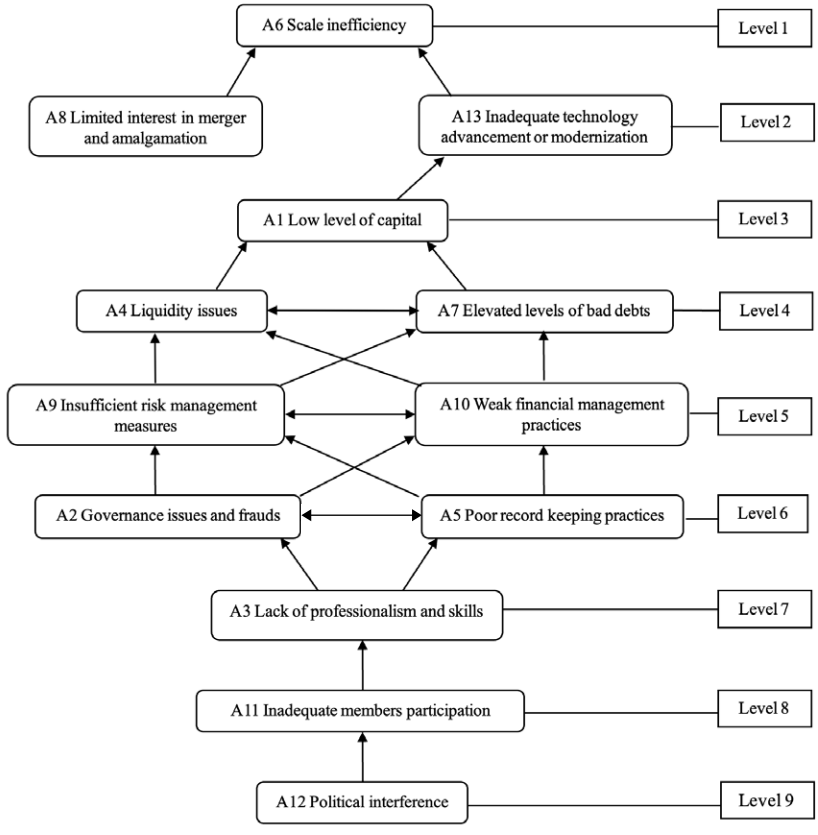
| Factors | Reachability set | Antecedent set | Intersection set | Level |
|---|---|---|---|---|
| **1** | | 12 | | 3 |
| **2** | | 12 | | 6 |
| **3** | | 12 | | 7 |
| **4** | | 12 | | 4 |
| **5** | | 12 | | 6 |
| **6** | | 12 | | 1 |
| **7** | | 12 | | 4 |
| **8** | | | | 2 |
| **9** | | 12 | | 5 |
| **10** | | 12 | | 5 |
| **11** | | 12 | | 8 |
| **12** | 12 | 12 | 12 | 9 |
| **13** | | 12 | | 2 |

### *5.4 Structuring the ISM model*

The structural model is developed using the information from the partition table and final reachability matrix. The partition table helps in identifying the level of each variable. The variables extracted during the first iteration level of the partition process are positioned at the top, and subsequent variables are placed downward, corresponding to the level of iteration in the partition process. Subsequently, visual representations in the form of arrows are employed to show the connections between the variables, e.g., if variable x helps in attaining variable y, an arrow pointing from x to y signifies this relationship. Understanding these relationships involves consulting the final reachability matrix, revealing dependence and driving power.

For example, variable (A6) scale inefficiency is placed at the top of the hierarchy as it is extracted during the initial iteration (level 1) of the partition process. The final reachability matrix indicates a driving power of one (the variable itself) and a dependence power of 13, indicating that the arrow points solely towards variable A6, as it does not contribute to the attainment of any other variable of the structure. This process culminates in the finalized output referred to as ISM showcased in Figure 3.

**Figure 3. ISM-based model for critical failure factors of UCBs in India**




*Source*: Authors' own elaboration.

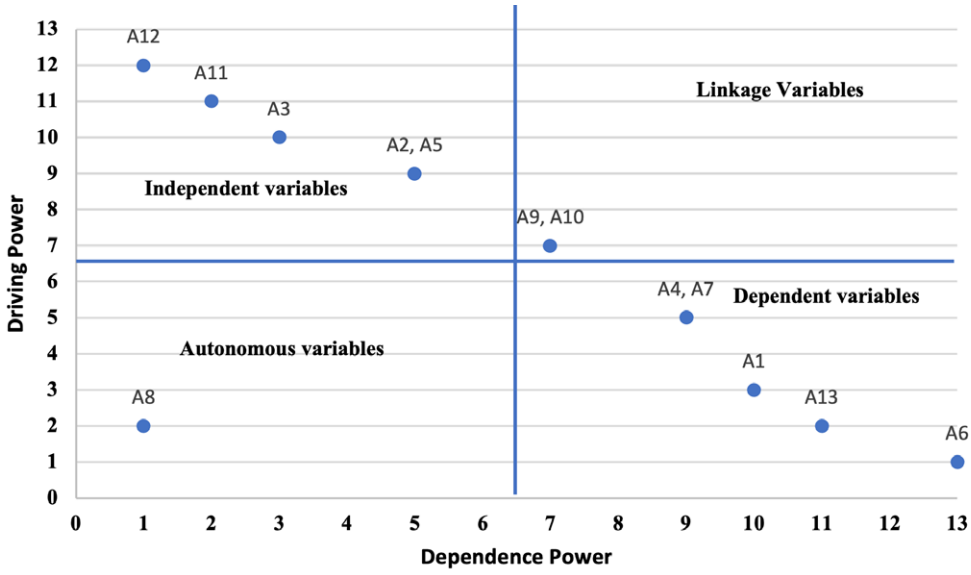
By analysing the framework, it is suggested that the primary determinants leading to the failure of UCBs in India are political interference, inadequate professionalism and skills, governance issues and fraudulent activities. These factors hold an important position at the base of the structure, emphasizing their significant impact. Conversely, scale inefficiency and a restricted inclination toward merger and acquisition activities emerge as the least influential elements within the entire network. All remaining factors fall between these two extremes in the hierarchical structure.

### *5.5. MICMAC analysis*

MICMAC was originated by Duperrin and Godet (1973) to investigate the propagation of effects within a system by analysing the diffusion of effect via reaction paths and loops for facilitating the establishment of hierarchies among the various constituents comprising an element set. MICMAC analysis can be utilized for the identification and analysis of constituent elements within complicated systems (Warfield, 1990). The primary purpose of the MICMAC analysis is to examine the driver power and the dependence power of the variables under investigation (Nishat Faisal, Banwet and Shankar, 2006). Using the final reachability matrix, the variables are graphed. The y-axis displays each factor's driving force, while the x-axis displays its degree of dependence. The factor coordinates fall into one of four clusters: autonomous, independent, linkage and dependent variables. Figure 4 shows the MICMAC analysis which helps to classify the failure factors of UCBs.

1. *Autonomous factors*. The cluster's contributing factors indicate weak driving and dependent power. As a result, they are relatively dispersed and have little influence on the system. They have few connections, some of which can be stronger. It can be viewed from Figure 4 that limited interest in merger and amalgamation activities (A8) is part of this cluster.
2. *Dependent factors.* This cluster exhibits factors having a weak driving power and a strong dependent power. Indeed, there are five dependent factors here: scale inefficiency (A6), inadequate technological advancement or modernization (A13), low level of capital (A1), liquidity issues (A4) and elevated level of bad debts (A7) as shown in Figure 4.
3. *Linkage factors.* The variables in this cluster have both strong driving power and dependent power. These variables have an impact on others and themselves. Referring to Figure 4, there are two linkage factors which include insufficient risk management measures (A9) and weak financial management practices (A10).
4. *Independent factors.* Variables with strong driving power but weak dependence power constitute the fourth cluster. Five factors were comprised by this cluster, namely governance issues and frauds (A2), poor record-keeping practices (A5), lack of professionalism and skills (A3), inadequate member participation (A11), and political interference (A12). These variables help in achieving all the variables that position in the upward direction of the ISM framework.

**Figure 4. Driving and dependence power diagram**




*Source*: Authors' own elaboration.

## 6. Discussion

UCBs hold a substantial position in the realm of banking services, as they cater to the credit requirements of retail customers, small-scale enterprises and medium-scale borrowers through their substantial regional presence and their dedication to a community-centric strategy. As of March 2022, there were 1,514 UCBs—scheduled cooperative (52) and non-scheduled cooperatives (1,462)—with aggregate deposits and advances of 5,26,021 crores and 3,14,741 crores respectively, having total assets of 6,66,486 crores (RBI, 2023). While the aggregate position of the UCB sector appears reasonable, there exists a significant heterogeneity in the size and performance of UCBs. As per the information available in the report of RBI (2023), 412 UCBs had gone into liquidation starting from the year 2004 up to March 31, 2022. The claims settled by the Deposit Insurance and Credit Guarantee Corporation during 2021-2022 also increased by eight times as compared to the previous year (DICGC, 2022). Therefore, the question arises as to why the UCBs fail in India. Investigating and evaluating the important factors that contribute to UCB failure is crucial, as they can be properly monitored to stop future failures of UCBs in India.

To accomplish this objective, the present study determines the factors that adversely affect the efficiency of UCBs. An ISM-based structural framework was formulated, wherein various variables were categorized into different groups, namely autonomous, dependent, linkage and independent variables. This classification was determined by carefully assessing the factors' level of dependence

and their ability to exert driving power within the model. According to Katiyar and Badola (2018), it can be observed that autonomous factors exhibit both a weak dependence and driving power, thereby indicating a relatively weak influence on other factors within the system. The study has found that limited interest in merger and amalgamation activities falls under this category which reflects that it is not the main reason for the UCBs' failure in India.

Governance issues and frauds, poor record-keeping practices, lack of professionalism and skills, inadequate member participation and political interference are located in the MICMAC analysis's fourth cluster (independent variables), indicating strong driving power. Therefore, these variables are the most crucial elements to focus on for the soundness of UCBs in India considering their impact on other factors. Being the ISM model's bottom factor, political interference is considered the most critical failure factor as it influences all other failure factors. Politicians' control over the cooperative sector raises concerns about conflicts of interest, where their influence on cooperative banks can lead to the exploitation of resources for political gains. The manipulation includes passing rules through dubious methods, such as opening shell accounts to evade credit exposure restrictions (Sapovadia, 2019). The appointments are also not independent of political influence (Dalal, 2016). UCBs participate in government credit-related social and priority sector financing initiatives (Rajeev and Mahesh, 2010). Political entities waive loans to win votes. Banks provide policy loans to state-owned enterprises (SOE) during economic downturns and these policy-related loan-financed projects raise default rates (Bonin and Huang, 2001). Other findings, like those of Lu, Thangavelu and Hu (2001), also back up the fact that financial institutions favour lending to SOEs. Likewise, Agarwal et al. (2016) prove that private banks receive political favours for lending to politically connected enterprises. This clearly shows that political interference drives a lack of professionalism, governance issues and fraud. Dalal (2016) stated that the key causes of UCB failure in India are dual regulation and political interference. Dual regulation by the State Registrar of Societies and the RBI leads to an open way for UCBs to escape scrutiny despite having failures and frauds. Furthermore, the ownership structures of cooperative banks make them highly vulnerable to external influences, particularly from political organizations and governments, which create supervisory concerns and principal-agent issues (Sengupta and Vardhan, 2017). The ruling party's vision regarding nationalization or privatization plays a key role in changing the ownership patterns of banks (Sen, 2016). Moreover, banking sector reforms are usually proposed by political parties (Rizvi et al., 2019). Therefore, political interference influences the active participation of members in the decision-making of UCBs. Singh et al. (2016) observed that the ownership pattern of banks impacts the internal factors related to respective banks. Hence, inactive member participation contributes to a lack of professionalism, poor record-keeping and governance issues.

Kumar and Srivastava (2020), also found that failures were mostly catalysed by managerial and governance deficiencies. These deficiencies result in liquidity issues and elevated levels of bad debts which come under the second quadrant called dependent variables. This quadrant also includes scale inefficiency, inadequate technological advancement or modernization, and low level of capital

which occupy the highest position in the hierarchy. Although these variables are weak drivers, they are highly dependent on power. This indicates that these variables are significantly influenced by other driving factors. The factors of inadequate risk management measures and weak financial management are shown in the MICMAC analysis' third cluster (linkages factors); therefore, it exhibits a high dependence and driving power. These variables play a linking role between the driving and dependent measures in the ISM framework by acting as mediating factors.

The findings will provide valuable insights for government officials, bank managers, and cooperative members, enabling them to comprehensively evaluate the various factors that may potentially hamper the efficiency of UCBs in India. This approach facilitates the formulation of strategic plans aimed at allocating valuable resources toward the most critical failure factors. In addition, the ISM model not only illustrates the interrelationship between the factors but also serves as a valuable tool for future scholars to understand the direct and indirect associations that exist among the variables.

## 7. Theoretical implications

The purpose of the current study is to provide a valuable contribution to the existing knowledge of UCBs. By conducting a comprehensive analysis of the existing literature, this research endeavours to offer novel theoretical insights into this field. First, the research aligns with the Raiffeisen model, founded by Friedrich Wilhelm Raiffeisen, in cooperative banking. This model emphasizes ethical considerations, principles of reciprocity, and member participation as a guiding principle for cooperative banking (Goglio and Leonardi, 2010). The key elements of the Raiffeisen model are necessary for sustainability, signifying that the absence of these elements led to the cooperative bank's failure. The findings mention that governance issues and fraud (A2) and inadequate member participation (A11) are key drivers of UCB's failure which align with the key elements of the Raiffeisen model.

Second, this research not only investigates the variables contributing to the failure of UCBs, but also categorizes them into autonomous, dependent, linkage and independent variables. It also facilitated the assessment of the degree of correlation between driving and dependence power of the UCBs' failure factors. Furthermore, the present study has identified political interference (A12) as the fundamental variable (level 1) that influences other failure factors of UCBs.

Third, the major contribution of this investigation entails a systematic examination of the association between the factors. It is potentially the first investigation to examine the contextual association between various variables responsible for UCB failure in India. The present study employs an ISM-based multilevel framework to elucidate the pragmatic relationship that exists between various variables with the assistance of experts' knowledge and skills.

## 8. Practical implications

The present study's ISM-based structural model positioned failure factors into driving and dependent variables. The hierarchical framework highlights the order in which bank managers need to allocate their limited resources to enhance the efficiency of UCBs in India. It identifies political interference, governance issues and frauds, inadequate member participation and lack of professionalism as key drivers of UCB failure. As pointed out by Dalal (2016), "Cooperative banks, under dual regulation of RBI and the Registrar of Cooperatives and systematically mismanaged by politicians and political parties, are a source of big losses to innocent depositors, mainly senior citizens, who are attracted by the higher interest they pay on term deposits". Political influence, in combination with poor corporate governance standards, plays a major role in this sector's demise (Times of India, 2021). Policymakers and regulators should prioritize isolating UCBs from political influence to ensure the autonomy and integrity of UCBs. They can formulate and implement policies to isolate UCBs from external political pressure. They should also prioritize strengthening the governance framework to mitigate the risks associated with weak governance. Furthermore, Sapovadia (2019), highlighted that weak leadership, underpaid and unskilled personnel and a disengaged membership offer an insufficient foundation for cooperative banks to compete effectively in an unregulated market environment. Policymakers should improve member participation by imparting knowledge about cooperative business through education programs and effective communication channels. Moreover, cooperative banks should also focus on developing tailored training programs and professional development opportunities for bank personnel to address the lack of professionalism.

The practical implications derived from this research paper emphasize the importance of autonomy, strong governance practices, members' education programs and training programs for professional development in mitigating the driving factors of UCB failures. Policymakers and regulators should implement targeted interventions to strengthen the cooperative banking sector, foster transparency and build a resilient financial ecosystem.

## 9. Conclusions

This study highlights the interactions and interplay among the failure factors of UCBs in the Indian banking sector. The hierarchical model unravels the dynamics of driving and dependence relationships among various failure factors. The research contributes significantly to the knowledge domain by pinpointing these failure factors and elucidating their interconnectedness, offering insights into the future trajectory of UCBs in India. This framework defines concisely that political interference (A12), governance issues and frauds (A2), lack of professionalism and skills (A3) and inadequate member participation(A11) act as a key driver of UCB failure. It influences the other failure factors of the hierarchal framework. Additionally, the study employs MICMAC analysis, categorizing failure factors into autonomous, dependent, linkage and independent variables. Since,

UCBs play an important role in India by mobilizing savings from middle- and lower-income groups and providing credit to small businesses and individuals, their potential failure poses a looming crisis. To avert such a scenario, the timely restoration of stability and financial health is imperative. UCBs must adopt governance and regulatory standards, along with professionalism and modernization similar to the mainstream commercial banks (Asher, 2007). This is essential to remain relevant and play a significant role in the development of India. From a methodological perspective, this research pioneers the application of ISM methodology in studying UCB failure factors, distinguishing itself from previous studies that merely identified these factors. Ultimately, the findings empower policymakers and regulators to formulate robust frameworks, ensuring UCBs' resilience and continued contribution to regional development and India's economic growth.

## 10. Limitations and scope for future research

The current study has many drawbacks. First, the ISM model was developed with the help of selected professionals and academicians, which may introduce a degree of partiality to its construction. The theoretical concept under consideration has not been statistically validated. With the assistance of AMOS, PLS or LISREL software, path analysis or SEM methods can put this theoretical concept to the test. The number of variables considered in the model's development may also be a limitation. Even though an extensive literature review was conducted to determine these 13 failure factors, it is conceivable that some variables responsible for the UCBs' dismal performance were overlooked and should be incorporated into future models.

At last, it is crucial to thoroughly evaluate the potential scope of future studies to expand the knowledge in this field. This study employs the ISM technique to construct a comprehensive relationship paradigm explaining the interaction of failure factors. The model is derived from inputs obtained exclusively from cooperative banks situated in India, thereby confining its generalizability to other countries. Subsequent investigations may attempt to conduct this study in different sectors, such as public or private banking. In future investigations, it is conceivable to employ structural equation modelling as a means to evaluate the model's reliability and validity.

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