

Unravelling the Theoretical Underpinning of Cashless Economy in The Context of Digital Payments– A Bibliometric Analysis

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Abstract

Objective: There has been a lot of interest in the cashless economy and digital payments as a study area. To guide future research, it is intended to examine the effectiveness and content of the social science literature published between 2006 and 2023.

Methods: Publications on Kolkata and contemporary issues in social sciences were retrieved from the database 'Dimension'. Publication year, keywords, document type, authors' names, affiliations, abstracts, and citation counts are some of the information collected. VOSviewer 1.6.18 was used to conduct bibliometric studies. To assess the interactions between various writers, nations, and institutions, network maps were created. Total link strength qualities were taken into consideration as one weight attribute.

Results: A total of 24 publications were retrieved; 16 were original research articles in the English language, 5 were pre-prints; 2 were Proceedings and 1 was a chapter. Out of the final 16 original articles total of 2 papers were published in 2023, 10 in 2022 and 4 publications in 2021. All 16 papers have open access.

Conclusion: There exists a future scope of studies in commerce, management & economics about the cashless economy and digital payments. To manage bibliographic data, VOSviewer offers simple, intuitive options.

Keywords: Cashless economy, Digital payments, E-wallets, Social science, VOSviewer, Bibliometric analysis

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Introduction

The paradigm shift towards financial inclusion in India started with the nationalisation of banks, followed by initiatives like loan waivers, rural branches, micro insurance, schemes for priority sector lending, no-frills accounts, etc. With recent actions, such as widespread enrolment in Pradhan Mantri Jan-Dhan Yojana (PMJDY) and Pradhan Mantri Suraksha Bima Yojana (PMSBY), the pull is still strong. Additionally, non-bank RBIs such as microfinance organizations, issuers of prepaid digital payments, and NBFCs have seen their numbers increase significantly. This on a large scale, has largely eliminated informal funding channels and unorganised moneylenders. Access to financial services will promote investment and facilitate consumption by improving resource mobilization (N'dri and Kakinaka, 2020). In tandem with the growing economy and population of India, more and more financial transactions are taking place every day between individuals, groups, businesses, organizations and governments of all sizes. Micro and small businesses, local low-skilled service providers, large-scale worker migrations, and the influx of students and job seekers all over the nation, all contributed to the immense growth. Rogoff (2017) identifies cash as the "curse" that has befallen the world today, alleging that cash is used for a variety of illegal and socially harmful activities such as tax evasion, bribery, terrorist financing, drug peddling and human trafficking, etc. which is consistent with the popular view that cash is a medium of economic concealments (Schneider and Enste, 2002). Bolt (2014) tracks the social productivity of wages of agricultural workers on the Zimbabwe-South Africa border and finds that workers struggle to preserve themselves in an unsafe environment. On July 1, 2015, the Indian government also unveiled its Digital India initiative. Aiming to transform India into a knowledge-based, digitally empowered, and cashless economy from the ground up, it is one of the most important and ambitious projects ever. To promote cashless transactions and convert India to a cashless economy, various digital payment methods have been introduced; namely Plastic Money, USSD, AEPS, UPI, POS, Mobile Wallet, Internet Banking, Mobile Banking, Micro ATM, etc. The GDP grows steadily as a result of such

transitions, which also significantly reduces the standard deviation of all macroeconomic variables except nominal interest rates and the negative effects of monetary policy shocks (Maurer, 2008). Mukhopadhyay (2015) and Mukhopadhyay (2016) have proposed theoretical models using data from the World Bank's Global Findex surveys from 2011 and 2014 as well as household and business surveys conducted in 2009-2010, to evaluate the decision of consumers and businesses to accept non-cash payment in order to determine the volume of common cashless transactions in India and which solutions are effective and which are not. With a clear understanding of how cryptocurrencies are used, cryptocurrency and e-commerce policies will be more effective, they believe. The views of the users add a perspective that places emphasis on how money is used in its cultural and social context, complementing the supply-side, economic, and technological understanding of money. (Singh, 1999). The Indian government demonetised two high-value currency denominations, the Rs. 500 and Rs. 1000, on November 8th, 2016, in an effort to combat both terrorism and the black economy. Prime Minister Shri Narendra Modi's announcement in this regard further encouraged the Indian economy's shift to a digital payment system.

Research Objective

The primary objective of this paper lies in preparing a bibliometric analysis of publications about the cashless economy and digital payments in the field of social science from 2006-2023. The secondary objective of this research includes going through the relevant existing literature to jot down the primary reasons for growth in digital payment and other important findings in this regard to recommend suggestions for the future scope of the study.

Conceptual Framework

The payments sector in India has experienced a thriving, disruptive, and innovative period recently. New business models and regulatory frameworks are disrupting traditional fee-based strategies, and new players are trying to unseat established players by utilizing new mobile platforms and data sources (Nelms, et al. al.; 2018). According to statistics, new payment methods have completely changed how consumers and businesses conduct standard business transactions (Gustia et. al.; 2022). At the moment, there are almost

900 million debit and credit cards in use. UPI simultaneously manages one billion transactions per month and has the support of over 140 banks in addition to international and local third parties (Businessworld, 3 January 2020). A new generation of financial services has emerged, thanks to mobile devices and internet access. All one may need is a mobile phone and an internet connection to access mobile money accounts and other text- or app-based financial accounts, so these services don't necessarily require high-tech equipment. The doors to universal cashless financial inclusion in India have now been opened with the advent of 4G and 5G internet services and smartphones that are reasonably priced. In fact, according to Global Findex data from 2017, some of the barriers that unbanked adults claim to face when trying to access financial services may be easier to overcome with the aid of mobile technology and the internet. Additionally, it states that 44% of adults with accounts who are from developing economies have sent or received digital payments in the recent past, compared to only 32% in 2014. Within three years, it rose in India from 19% to 29%. 5% of Indian adults aged 18 and above used mobile payments in 2017, compared to 23% who used other digital payment methods. 51% opted not to engage in any digital transactions, though. In the digital payments segment, the total transaction value is anticipated to increase from its current level of US\$81,197 million in 2020 to US\$134,588 million in 2023, with a compound annual growth rate (CAGR) of 18.3 percent, according to Statista.com. Mobile POS Payments had a total transaction value of US\$9,653 million in 2020 (average transaction value per user is US\$19,08), and it is anticipated that this value will increase to US\$33,815 million in 2023 at a rate of 51.9% per year (CAGR 2020-2023). By 2023, 697.8 million users are anticipated in this market. With financial inclusion, the question of empowerment also arises, underlying the idea that the social understanding of money is rooted in the practices of people (Maurer, 2015). The recent Covid-19 pandemic and lockdown related to it further acted as catalysts for transforming India towards a cashless economy. The pandemic situation practically made fiat money almost useless and compelled people to shift to digital payment methods for transactions made (De, 2022).

After considering the extant literature, some of the main reasons found for the growth in cashless transactions through digital mediums in the Indian economy can be enumerated as follows-

1. Affordability: Various government programs, including Make in India and Digital India, have significantly reduced the cost of the technology. It has also become more adaptable, thanks to low prices brought on by competition from international marketers and simple features created especially for Indian customers. Indian consumers are embracing technology more and more quickly. While the overall teledensity is 81.8%, the mobile teledensity is also high at 79.8% as of November 2015, surpassing the United States of America to become the second-largest market for smartphones after China with 220 million users, according to Deloitte (2016) report. With 354 million users online as of September 2015, internet penetration is also rapidly increasing. In addition, voice-based mobile usage is giving way to data-based usage. During 2014 and 2015, spending on mobile internet increased from 54% to 64%. By 2023, there should be 500.9 million people using mobile devices to access the internet, according to a statista.com report. This is because high-speed 4G and 5G internet connectivity is available for a reasonable price. which has led to an increase in transactions done via mobile phones. Not only mobile services, but plastic money also is a very popular method of digital payments. Almost all banks now provide their customers with debit and credit card facilities for a nominal charge. Even e-commerce websites are twinning with various banks to provide customised and specialised debit and credit cards to increase their sales.
2. Availability: Various digital platforms such as USSD, UPI, mobile wallets and mobile banking are available for making transactions through mobile phones. These options not only have easy transaction facilities but also provide different discounts and cashback offers. Even plastic money providers lure their customers with loads of loyalty points and other benefits. Moreover, they are very easy to use and accepted

payment methods for many shops across the country which contributes to the immediate acceptability by the customers. After the recent demonetisation in India, e-wallets along with debit and credit cards saw a sudden jump in users. From neighbourhood grocery stores to roadside tea stalls, even small businesses started accepting digital micro-payments through e-wallets and Point of Sales (PoS). According to the cashlessindia.gov.in website; presently 51 banks provide USSD services, whereas 31 banks are registered for UPI service. A total of 40 companies, such as Paytm, Freecharge, Mobikwik, Oxigen, mRuppee, Airtel Money, Jio Money, SBI Buddy, Itz Cash, Citrus Pay, Vodafone M-Pesa, Axis Bank Lime, ICICI Pockets, SpeedPay etc. provide mobile wallet services.

3. Mobility issue in high-value transactions: Digital payments using mobile phones and plastic money enable mobility without being physically mobile. Especially in the case of high-value transactions, funds can be transferred from one account to the other (including both bank accounts and e-wallet accounts) with just a few clicks or taps on the mobile phone. However, it necessarily requires one to have done KYC which enables one to transact up to Rs. 1 lakh per month using mobile wallets. Else, the transaction value cap remains at Rs. 10,000 per month, which may be used to shop online and do things like pay for a cab ride; but cannot be used for transferring money to another e-wallet account, even if it is with the same e-wallet provider. According to a PwC (2015) report, with more than 900 million telecom connections, the use of mobile as a platform to create access and incentivize usage of electronic payments can create a meaningful dent in the all-pervasive kingdom of cash.
4. Creation of awareness: People are now more aware of using digital platforms for making transactions. Slogans like “PayTM karo” are now known to every household. Such awareness is not only created through advertisements in different media, but the Government of India (GOI) itself has taken the initiative of making people aware of digital transactions and their benefits over conventional payment methods.

For this purpose, GOI has launched its own UPI service BHIM app. Thus, people are now more convinced to shift to smart payment methods.

5. Online transaction security: A major concern with digital transactions among the Indian masses was its security. This is because they are conservative and most of them do not want to take any risk with their hard-earned money. However, these transactions are now much more secure through end-to-end encryption. Moreover, most of them use secured payment gateways and the payment is completed only after validation of PIN or OTP sent to the customer in his registered mobile number. Payment and Settlement Systems (PSS Act) in 2007, a new class of regulated entities was created to target this niche of growing opportunity. With the creation of the National Payments Corporation of India (NPCI) as a nodal infrastructure agency for small payments and real-time payments using Immediate Payment Service (IMPS), there was a fillip to the system and the growth of electronic payments started in right earnest.
6. Avoiding direct banking interactions: Still today, people are hesitant to go for direct banking interactions. This is mainly because of two reasons. Firstly, they want to avoid the long queues and formal banking procedures. Secondly, they do not feel comfortable with the sophisticated techniques of the banking system. The second reason is mainly applicable to the lower middle class and marginalized people. Switching to digital transaction methods allows them to handle 'e-cash' without any direct interaction with banks.
7. Network effect: Nowadays, many people have started their businesses on a small-scale resorting to such digital payment methods. Their products are being sold not only within our country but also abroad. As a result, they are earning quite a handsome amount of profit from such transactions. Being attracted by that, many others are starting their businesses and accepting payments through digital mediums. Such a network effect is creating awareness and making people shift from conventional payment methods to adopting various digital payment

techniques. Such network effect is very much evident among many self-help groups and small groups led by women entrepreneurs.

Methodology

This research endeavour completely relies on secondary data. This is a work of descriptive study where a comprehensive search was performed online inside the database 'Dimensions'. The search term was "Digital Currency OR Digital Wallets OR E-Wallets" in the title, abstract and full paper. The period of publication was from 2006-2023. The search retrieved items in English respectively that met the inclusion criterion.

Year of publication, keywords, document type, author, affiliation, abstracts, DOI, editor, publisher, and ISSN No. are among the data that have been gathered. Articles not fulfilling these requirements are typically excluded; all retrieved data were exported into a tab-delimited file. VOSviewer 1.6.18 was used to analyse Co-Authorship, Citations, Bibliographic Coupling, Co-citations, and publication trends.

Analysis and findings

Bibliometric Output: A total of 24 publications were retrieved; 16 were original research articles in the English language, 5 were preprint; 2 were Proceeding and 1 was a chapter. Out of the final 16 original articles total of 2 papers were published in 2023, 10 in 2022 and 4 publications in 2021. All 16 papers have open access. The highest number of publications took place in 2022. Figure 1 shows publications in each year. Table 1 includes researcher details in each category along with citation mean. Table 2 includes details of source titles.

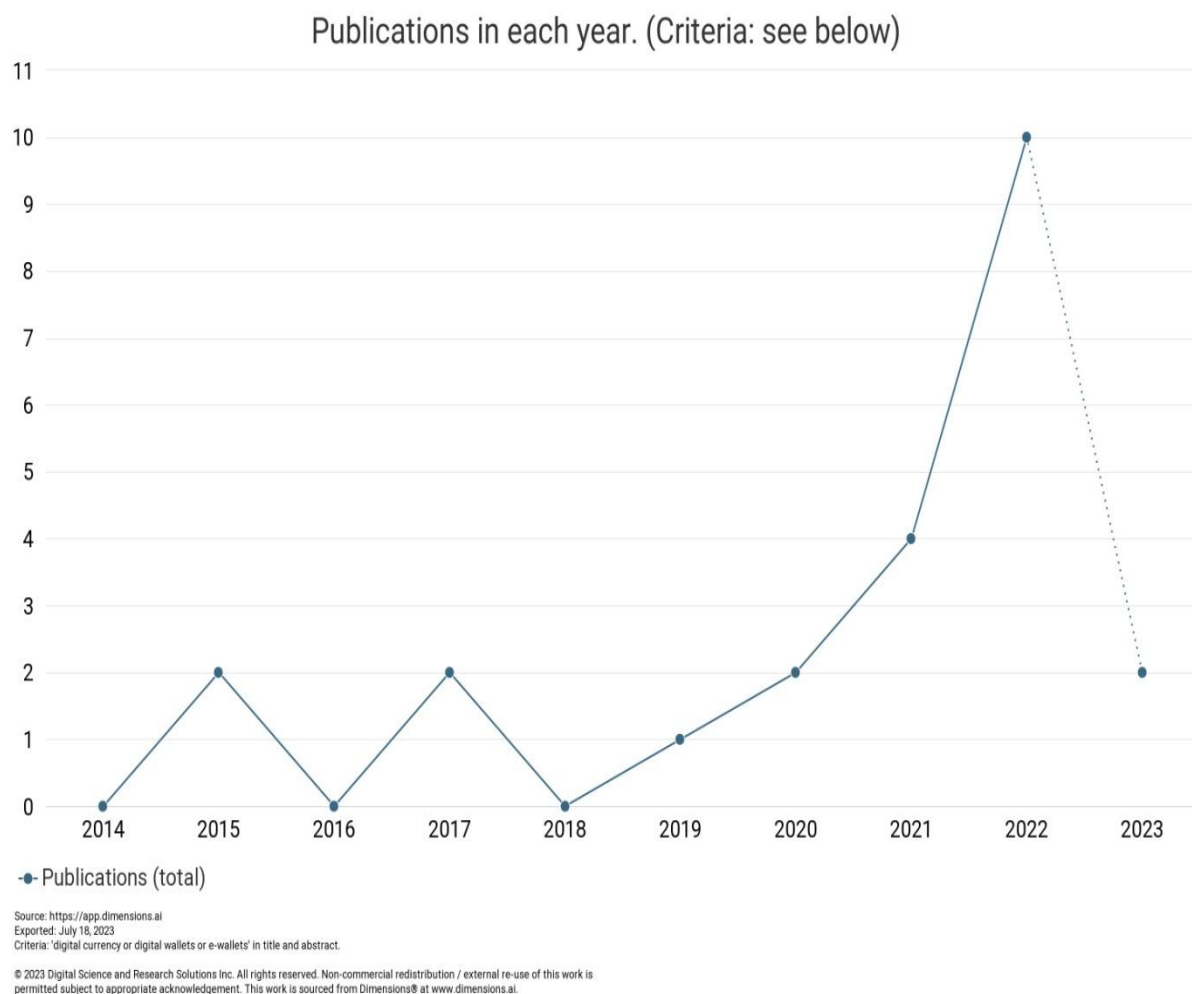


Figure 1: Trend in publications over the years

Table 1: Researchers' details

<u>Name</u> <u>Organization,</u> <u>Country</u>	<u>Publications</u>	<u>Citations</u>	<u>Citations</u> <u>mean</u>
<u>Paolo Tasca</u> University College London, United Kingdom	3	14	4.67

<u>Hazem Danny Al-Nakib</u> University College London, United Kingdom	3	14	4.67
<u>Geoffrey Goodell</u> University College London, United Kingdom	2	13	6.50
<u>Shashi Kant Srivastava</u>	1	1	1
<u>Eric B Blancaflor</u> Mapúa University, Philippines	1	1	1
<u>Samson Yusuf Dauda</u> Seoul National University, South Korea	1	66	66
<u>Remon Cornelisse</u> Ministry of Security and Justice, Netherlands	1	1	1
<u>Roman Lipskyi</u>	1	0	-
<u>Sagar Samtani</u> Indiana University Bloomington, United States	1	0	-
<u>Hajed Alotaibi</u>	1	0	-
<u>Shehzad Ashraf Chaudhry</u> Gelişim Üniversitesi, Turkey	1	1	1
<u>Tongtong Li</u>	1	68	68

Michigan State University, United States			
<u>Jongsu Lee</u> Seoul National University, South Korea	1	66	66
<u>Jian Ren</u> Michigan State University, United States	1	68	68
<u>Dr Sunil Khatal</u> University of Pune, India	1	0	-
<u>Jianguo Xu</u> Peking University, China	1	10	10
<u>Simon Trimborn</u> City University of Hong Kong, China	1	9	9
<u>Wolfgang Karl Härdle</u> Humboldt-Universität zu Berlin, Germany	1	9	9
<u>Oriol Caudevilla</u> University of Hong Kong, China	1	0	-
<u>Olena Sirenko</u>	1	0	-
<u>Linda Jean Camp</u> Indiana University Bloomington, United States	1	0	-

<u>Janardan Krishna Yadav</u> O. P. Jindal Global University, India	1	1	1
<u>Bart H M Custers</u> Leiden University, Netherlands	1	1	1
<u>TetyanaMokiienko</u>	1	0	-
<u>Deepika Chandra Verma</u> O. P. Jindal Global University, India	1	1	1
<u>Matt W Mutka</u> Michigan State University, United States	1	68	68
<u>Ehab Zaghoul</u> Michigan State University, United States	1	68	68
<u>Srinivas Jangirala</u> O. P. Jindal Global University, India	1	1	1

Table 2: Details of source titles

<u>Name</u>	<u>Publications</u>	<u>Citations</u>	<u>Citations mean</u>
<u>SSRN Electronic Journal</u>	4	10	2.50
<u>Jahrbuch für Wirtschaftsgeschichte</u> <u>/ Econo</u>	1	0	-

<u>International Journal of Science and Society</u>	1	0	-
<u>Asian Economic Policy Review</u>	1	10	10
<u>IEEE Internet of Things Journal</u>	1	68	68
<u>Future Internet</u>	1	13	13
<u>IRA-International Journal of Management & Social Sciences (ISSN 2455-2267)</u>	1	0	-
<u>M/C Journal</u>	1	0	-
<u>Journal of Human and Administrative Sciences</u>	1	0	-
<u>International scientific journal Internauka Series Economical Sciences</u>	1	0	-
<u>Lecture Notes in Networks and Systems</u>	1	1	1
<u>Law and innovations</u>	1	0	-
<u>International Journal of Engineering Applied Sciences and Technology</u>	1	0	-
<u>arXiv</u>	1	0	-

<u>Information Systems</u>	1	66	66
<u>International Journal of Advanced Research in Science Communication and Technology</u>	1	0	-
<u>Russian Journal of Economics and Law</u>	1	1	1
<u>INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH IN ENGINEERING AND MANAGEMENT</u>	1	0	-
<u>Best Journal of Administration and Management</u>	1	0	-

Terminologies and their General Significance:

A technical paper that has two or more writers from different companies or organisations is said to have co-authored it. **Co-authorship analysis** is still frequently used to analyse and evaluate the patterns of scientific collaboration. In co-authorship networks, nodes stand in for authors, organisations, or nations that are linked together when they co-author a publication.

Citation analysis counts the times a piece of writing is cited in other works in order to gauge the impact of a publication or author.

When a third document cites two other documents, this is known as **co-citation**. Author co-citation analysis (ACA) sheds light on how authors, who are subject matter experts, link concepts in published works. (Small, H.1973) When two studies quote the same third document, this is known as **bibliographic coupling**. In other words, bibliographic coupling refers to the similarity of publications' reference lists. In other words, author-author or journal-journal ties can be measured using bibliographic coupling (Egghe and

Rousseau, 2002; Cobo et al., 2011; Zupic and Ater, 2015; Aria and Cuccurullo, 2017).

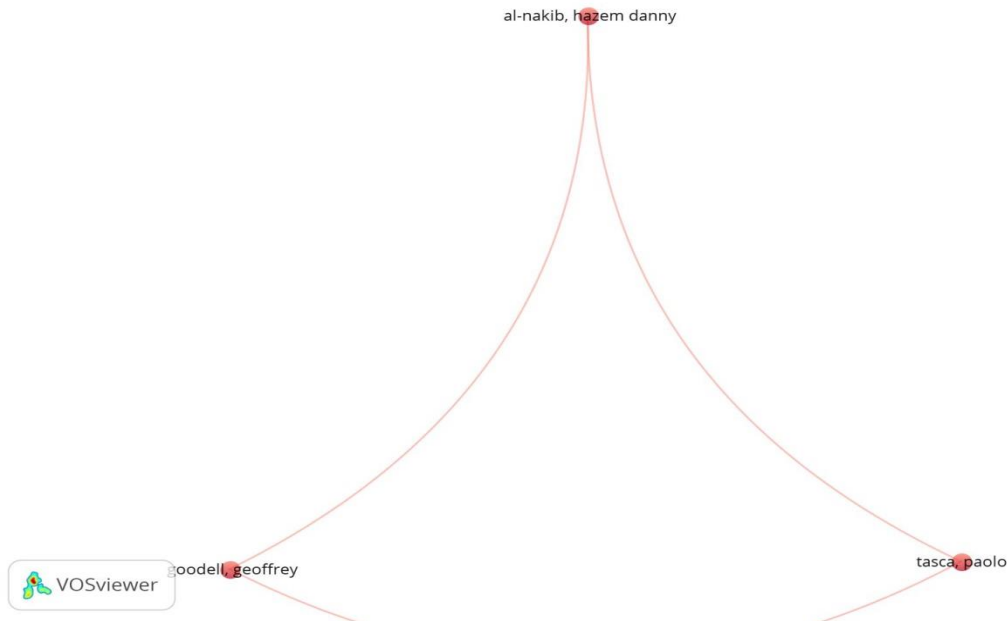


Figure 3: Network Visualization of Co-Authorship Metadata (Authors)



Figure 4: Overlay Visualization of Co-Authorship metadata (Organisation)

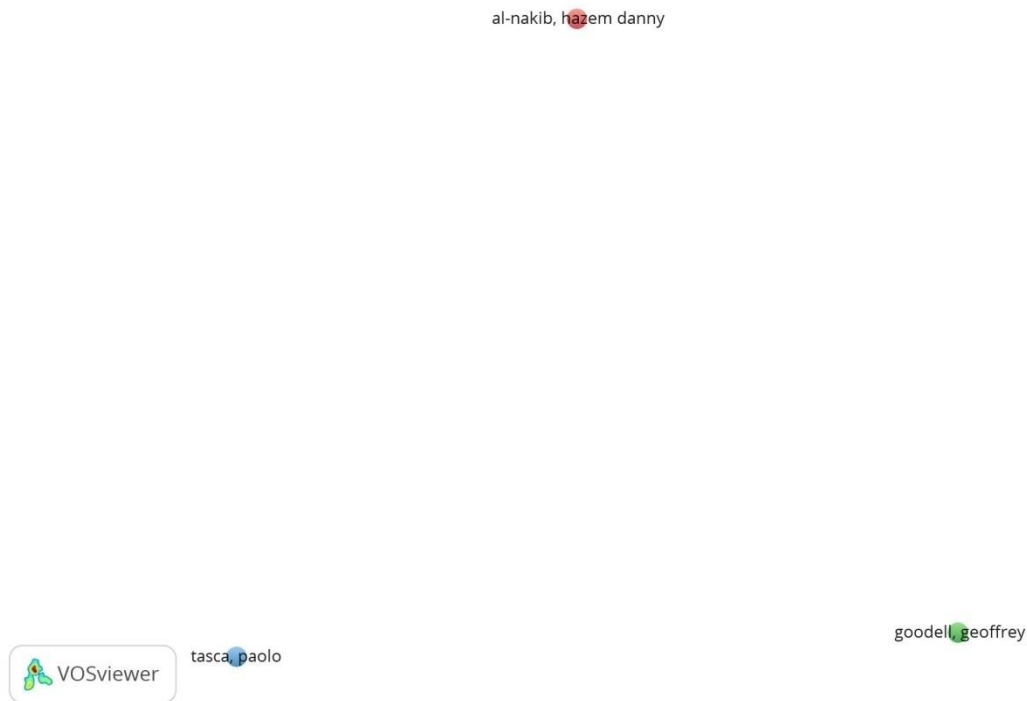


Figure 5: Network Visualization of Citation Metadata (Authors)

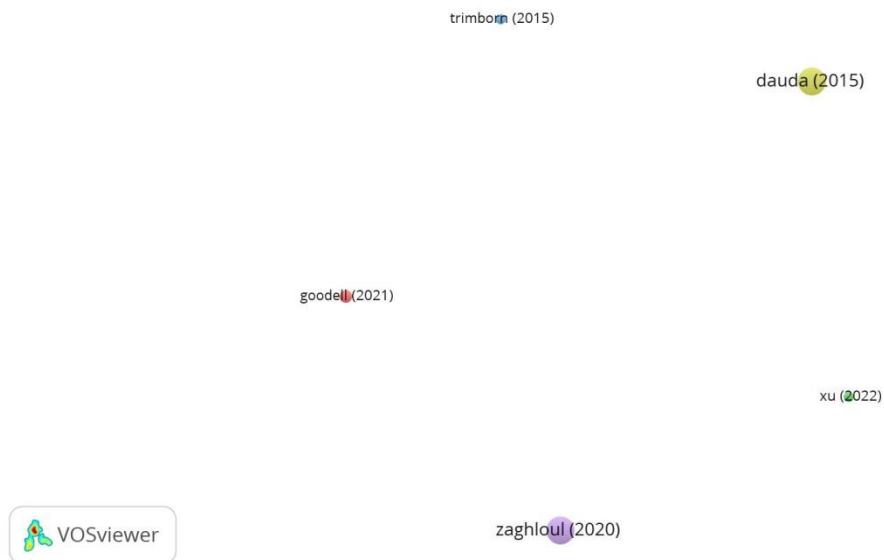


Figure 6: Overlay Visualization of Citation Metadata (Document)

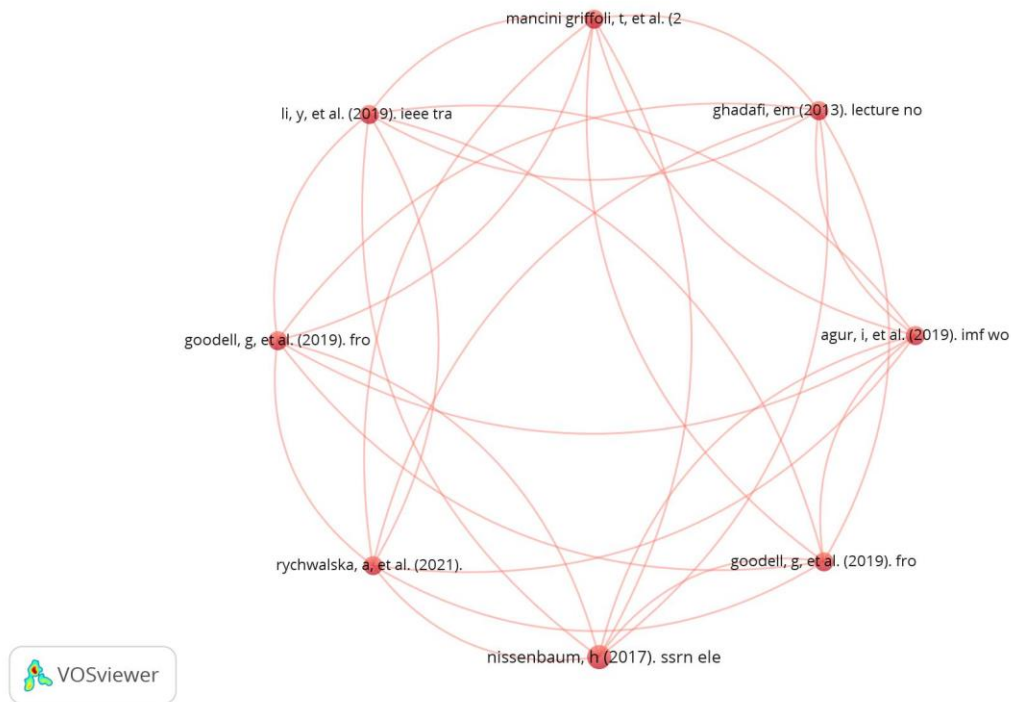


Figure 7: Network Visualization of Co-Citation Metadata (Cited Reference)

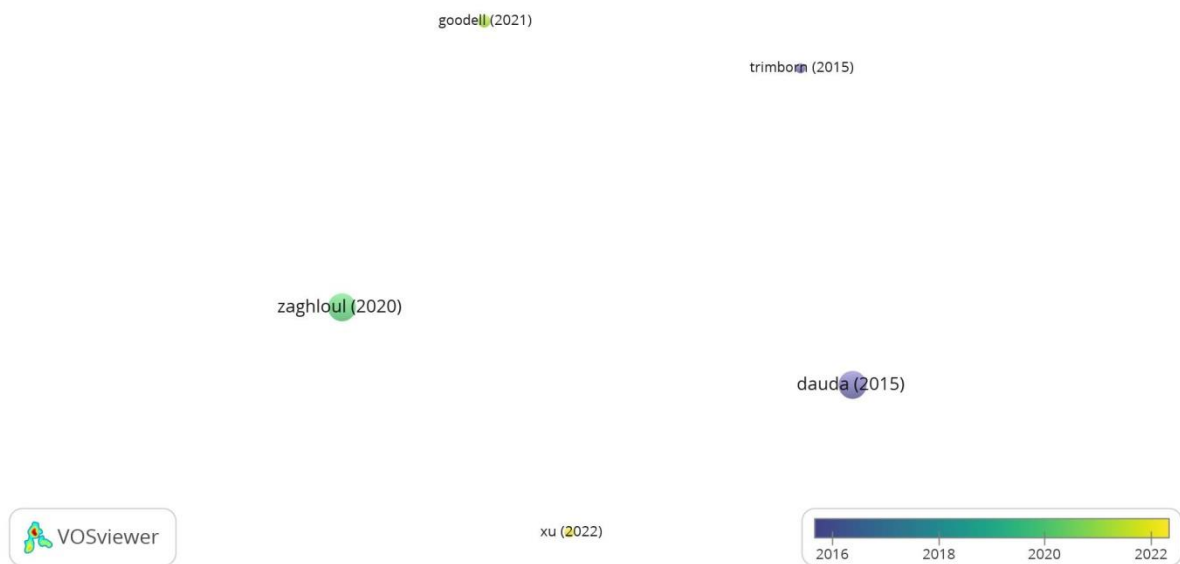


Figure 8: Overlay Visualization of Bibliographic Coupling Metadata (Document)

A calculation is made to determine the overall strength of the co-authorship ties. Authors are chosen based on their overall link strength. Of the 56

authors, 3 meet the threshold. 3 items cluster 1 link 3 TLS 6 is recognised. (Figure-3)

The total strength of the co-authorship ties with other organisations has been determined for each of the 14 organisations. 14 out of the 14 organisations are in compliance. The organisation with the greatest overall link strength is chosen. Items 14 clusters, 12 linkages 2 is recognised. (Figure-4)

When the minimal number of documents for an author is 2, only 3 out of the 56 authors meet the requirement. The overall strength of the citation relationships with other authors is computed for each of the three authors. Items 3 clusters 3 are recognised. (Figure-5)

When a document only needs two citations to be considered, only five of the 24 meet the requirement. The total number of citation links for each of the five documents is determined. 5 items and 8 clusters are recognised. (Figure-6)

When the minimum number of citations for a cited reference is 2, 9 out of the 212 items referenced references meet the requirement. The overall strength of co-citation linkages with other cited references is determined for each of the 9 cited references. The largest set of connected items consists of 8 items. 8 Items 1 Cluster 28 links 56 total link strength is recognised. (Figure-7)

When a document only needs two citations to be considered, only five of the 24 meet the requirement. For each of the 5 documents, the total strength of the bibliographic coupling links with other documents is calculated. 5 Items and 5 Clusters are recognised. (Figure-8)

The most cited article is Zaghoul (2020) titled 'Bitcoin and Blockchain: Security and Privacy' published in IEEE Internet of Things Journal by the authors of Michigan State University. The writers of this article gave a thorough study and analysis of the main problems, opportunities, and privacy and security concerns related to Bitcoin and blockchain, as well as the security and privacy issues that these technologies are most commonly associated with. The security, service offerings, and trade-offs of three

different Bitcoin wallet types were analysed. After discussing the security and privacy aspects of alternative cryptocurrencies, a summary of currently developing technologies was given. Dauda (2015) has received the second highest citations. The title of the paper is 'Technology adoption: A conjoint analysis of consumers' preference on future online banking services'. It has been published in the journal-Information Systems by the authors of Seoul National University. In order to analyse the technology adoption pattern regarding consumers' preferences for prospective future online banking services in the Nigerian banking industry, the study used conjoint analysis and stated preference methods using discrete choice models. From the literature identified and reviewed through bibliometric analysis, it is found that as per as digital wallets and currencies are concerned majority of the works have dealt with prospects, challenges and the present state of digital wallets and currencies in India, perception and awareness of buyers of a few specific sectors in India. It is possible to conduct further research on how e-wallets and sales promotions affect middle-class and lower-class consumer decisions in developing and undeveloped nations. There exists future scope in studying digital payment systems or technology adoption in India regarding purchasing decisions of women or rural folk.

Conclusion

A cashless economy does not aim at the complete removal of cash transactions from the economy, rather its primary objective is to reduce the use of cash to the minimum. Cash transactions are mostly unaccounted, and hence there remains a possibility of tax evasion and black economy funding by the way of an increased number of cash transactions. Hence, moving towards a cashless economy by greater use of digital payment systems is the need of the hour and the future of economic transactions. Digital payment does not only include mobile banking and online transactions but also brings a large array of payment options like debit and credit cards, Point of Sale (PoS), ATM transactions etc. within its ambit. The digital transaction helps towards financial inclusion and women's empowerment in a passive way. It not only lets people transact money without handling physical cash but also

enables them to open bank accounts. In 2017, 77% of Indian women, compared to 43% in 2014 and 26% in 2011, own a bank account, according to Findex estimation. This is because, for loading cash in mobile wallets or transacting through UPI, USSD and mobile banking, one must have a bank account. Moreover, to get back the cash in physical form which is loaded in mobile wallets, the amount must be transferred to the bank account and withdrawn from there. Thus, digital transactions help to bring more people under the purview of the banking system without indulging more in physical cash. However, still, there remains a large portion of the marginalised Indian population who do not have any bank account. As a result, in its concept note dated October 7, 2022, the Reserve Bank of India suggested introducing Central Bank Digital Currency (CBDC) in India in the form of e-Rupee (e) in both wholesale and retail forms. The Indian central bank shall issue it as legal tender. It shall be the same as the existing fiat currency which acts as a store of value, only in the digital form. Unlike the existing UPI applications, the e-Rupee (₹) shall be a sovereign currency in electronic form and not just a payment medium. Hence, a person shall be able to use the same without even opening a bank account.

Digital payment however cannot be considered as a panacea yet. In a developing country like India, despite increased access to fast internet and affordable smartphones, most people are ignorant of the latest technologies and are also very hesitant to try out new payment options. Being not sufficiently financially literate and sticking to the conventional mode of payment further add to such drudgery. The lacuna in the supply side story is also very important and cannot be overlooked. In the suburban and rural parts of our country, till date only cash payment is accepted in most of the shops, making complete digitalisation of the payment system a distant dream. Moreover, many celebrated economists including Dr. Pranab Bardhan, Professor of Economics, University of California emphasised the need of implementing Universal Basic Income which was first proposed by Arvind Subramanian who was the then CEA during the first term of the NDA government. It is a socio-political concept which deals with the transfer of

finance in the form of a small but specific amount of cash to every adult citizen of the country as an allowance by the government to meet the basic needs of livelihood. Now, if the basic income is received in cash, automatically a lion's share of the same is anticipated to be spent in cash by most of the recipients on daily necessities and essential commodities. Further, the increased number of frauds associated with online and plastic money transactions makes common people alienated from engaging in digital transactions. With an increase in digital transactions, there shall be a need for a separate act governing various issues and addressing different grievances relating to the transactions performed in the cashless mode. The present system, unfortunately, misses out on that. The awareness about digital payment, its safety and convenience is, however, gradually being percolated among the masses. The Government of India is also taking significant measures to move a few steps ahead with the digitalisation of payment systems towards achieving its longstanding dream of a cashless economy. Data show the salient success of such initiatives in the form of an increased volume of transactions in digital mode over the years. The advancement in the payment system and growth in the volume of transactions indirectly contributes to economic prosperity and social well-being. It is needless to say that this initiative of gradual transformation of India towards digitalisation is expected to curb illicit economic transactions and contribute to GDP growth for the overall betterment of our country.

Limitations

Pieces of literature consisting of original articles written in the English language have been retrieved only from the open database 'dimension'. It fails to collect data from other databases and does not consider articles written in languages other than English. Articles published as book chapters and journals which are not available online are also kept out of the ambit of our research. The literature relating to social science only has been taken under consideration for this research which has further narrowed down the scope of the same. Further, literature published during the last eighteen years, namely from 2006 to 2023 has been considered. Literature available prior to

this timeframe has been ignored in order to make the research focused and concise.

Future scope of the study

From the literature identified and reviewed through bibliometric analysis, it is found that most of such works have been done in the context of developed countries. There remains a dearth of such research works for underdeveloped countries. The majority of the works in the context of developing countries evolve around prospects, challenges and the present state of digital wallets and currencies, along with the perception and awareness of buyers of a few specific sectors in India. However, in most of such papers, primary data has been collected for specific strata narrowing down the findings to a specific class of people and failing to give an impression of the overall condition. Regarding developing and underdeveloped countries there remains ample scope for further studying the effect of e-wallets and sales promotion on purchasing decisions of the middle class and lower class. There exists future scope in studying digital payment systems or technology adoption in India regarding purchasing decisions of women or rural folk. The recent announcement of RBI to introduce the e-Rupee (₹) in India is going to be the latest addition to the array of digital payment methods. Though digital currency has been long-standing in many developed countries of the world, in India it is still in the nascent stage. The acumen of this system in developing countries, particularly in India is yet to be found out.

References

- [1] Small, H. (1973). Co-citation in the scientific literature: A new measure of the relationship between two documents. *J. Am. Soc. Inf. Sci.*, 24: 265-269. <https://doi.org/10.1002/asi.4630240406>
- [2] Egghe, L. & Rousseau, R. (2002). Co-citation, bibliographic coupling and a characterization of lattice citation networks. *Scientometrics*, 55(3), 349-361. <https://doi.org/10.1023/a:1020458612014>
- [3] Cobo, M. J., López-Herrera, A. G., Herrera-Viedma, E. & Herrera, F. (2011). Science mapping software tools: review, analysis, and cooperative study among tools. *Journal of the American Society for Information Science and Technology*, 62(7), 1382-1402. <https://doi.org/10.1002/asi.21525>
- [4] Aria, M. & Cuccurullo, C. (2017). bibliometrix: an R-tool for comprehensive science mapping analysis. *Journal of Informetrics*, 11(4), 959-975. <https://doi.org/10.1016/j.joi.2017.08.007>
- [5] Zupic, I. & Čater, T. (2015). Bibliometric methods in management and organization. *Organizational Research Methods*, 18(3), 429-472. <https://doi.org/10.1177/1094428114562629>
- [6] Bolt, M. (2014). The sociality of the wage: money rhythms, wealth circulation, and the problem with cash on the Zimbabwean-South African border. *Journal of the Royal Anthropological Institute*, 20(1), 113-130.
- [7] De, Ayanava (2022). Cashless transaction: a boon or curse to an average Indian citizen. Vol. 6(11). *International Journal of Engineering Applied Sciences and Technology* (2022). 230-233.
- [8] Deloitte (2016) “e-Commerce in India: A Game Changer”. <https://www2.deloitte.com/content/dam/Deloitte/in/Documents/technology-media-telecommunications/in-tmt-e-commerce-in-india-noexp.pdf> retrieved on 20/03/2020 at 11:45pm.

- [9] Gustia, A., &Syah, D. O. (2022). The Effect of E-wallet and Sales Promotion on Purchasing Decisions. *Best Journal of Administration and Management*, 1(1), 53-60.
- [10] http://cashlessindia.gov.in/mobile_wallets.html accessed on 21/03/2020 at 9.37am.
- [11] <http://www.businessworld.in/article/India-s-Digital-Payments-Journey-An-Overview-Of-This-Decade-2020-And-Beyond/03-01-2020-181443/> accessed on 20/03/2020 at 9.12pm.
- [12] <https://www.rbi.org.in/Scripts/PublicationReportDetails.aspx?UrlPage=&ID=1218>
- [13] <https://www.statista.com/outlook/296/119/digital-payments/india> accessed on 20/03/2020 at 8.19pm.
- [14] <https://www.statista.com/statistics/558610/number-of-mobile-internet-user-in-india/> accessed on 21/03/2020 at 9.19pm.
- [15] Maurer, B. (2015). *How would you like to pay?: how technology is changing the future of money*. Duke University Press.
- [16] Maurer, R. (2008). *The Increasing Leverage of Central Bank Cash in Transition to a Cashless Economy–A DSGEM Analysis*. Available at SSRN 1137150.
- [17] Mukhopadhyay (2016) *Understanding cashless payments in India*. *Financial Innovation* (2016) 2-27.
- [18] Mukhopadhyay, B. (2015). *Promoting Cashless Payments in India*. Available at SSRN 2702354.
- [19] N'dri, L. M., and Kakinaka, M. (2020). Financial inclusion, mobile money, and individual welfare: The case of Burkina Faso. *Telecommunications Policy*, 44(3), 101926.
- [20] Nelms, T. C., Maurer, B., Swartz, L., and Mainwaring, S. (2018). *Social payments: Innovation, trust, Bitcoin, and the sharing economy*. Future of Money Research Collaborative. *Theory, Culture and Society*, 35(3), 13-33.
- [21] PwC (2015) “Disrupting cash: Accelerating electronic payments in India”. <https://www.pwc.in/assets/pdfs/publications/2015/disrupting->

cash-accelerating-electronic-payments-in-india.pdf retrieved on 20/03/2020 at 11:13pm.

- [22] Rogoff, K. S. (2017). *The curse of cash: How large-denomination bills aid crime and tax evasion and constrain monetary policy*. Princeton University Press.
- [23] Schneider, F., & Enste, D. (2002). *Hiding in the shadows: the growth of the underground economy* (Vol. 30). International Monetary Fund.
- [24] Singh (1999) Electronic money: understanding its use to increase the effectiveness of policy. *Telecommunications Policy* 23 (1999) 753-773.
- [25] The Global Findex Database, 2017. <https://openknowledge.worldbank.org/bitstream/handle/10986/29510/9781464812590>