



# Introduction

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In recent years,<sup>1</sup> there has been a significant expansion in scientific literature devoted to the study of social networks. The very use of the term “network” has become increasingly common across a wide range of contexts.<sup>2</sup> This trend reflects the rising interest of the scholarly community in these structures, which “permeate our social and economic lives”.<sup>3</sup>

As emphasized by Matthew Jackson in his comprehensive volume on social network analysis (henceforth SNA), networks are vehicles for human interaction. They affect the dissemination of information,

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<sup>1</sup> The author would like to acknowledge the generous funding of the Library of Lund University, which supported us in publishing this book in open access.

<sup>2</sup> Florian Kerschbaumer, Linda von Keyserlingk-Rehbein, Martin Stark and Marten Düring, ‘Introduction’ in: Florian Kerschbaumer, Linda von Keyserlingk-Rehbein, Martin Stark and Marten Düring (eds.), *The Power of Networks. Prospects of Historical Network Research* (London and New York, 2020), 1–10, there p. 3; About the growing use of term “networks”, see Claire Lemerrier, ‘Analyse de reseaux et histoire’, in: *Revue d’histoire modern & contemporaine*, 52:2 (2005), 88–112.

<sup>3</sup> Matthew O. Jackson *Social and economic networks* (Princeton, 2008), there 17.

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and influence individuals' choices.<sup>4</sup> Despite evolving and growing more complex over time, human networks are governed by basic rules that are stable and predictable. For this reason, adopting a network perspective proves crucial in studying and thoroughly comprehending a variety of human actions.

This volume is the result of insightful discussions among the authors during a workshop organized by the editors at Stockholm University in October 2022, titled “Networks, Behavior, and Strategies in Early Financial Markets” (Stockholm, October 27 & 28 October 2022).<sup>5</sup> Overall, this volume aims to stress the significance of networks, as well as the importance of adopting a network perspective to investigate historical facts. In particular, its various chapters deal with a specific sub-group of networks based on credit transactions. Indeed, the book involves several authors who are experts in financial history. Their research delves into various periods and contexts, from fifteenth-century Europe to eighteenth-century North and South America, examining different forms of credit, intermediated and non-intermediated.

To develop a common framework, we asked the authors who participated in this volume to observe interpersonal credit transactions in the past through the lens of networks, using the approach they believed was the most suited according to their data and research questions. The result is characterized by a variety—which involves topics, contexts, periods, and methodologies—that can be considered as one of the most compelling aspects of the book. But it also poses a challenge. On the one hand, such a variety strengthens the whole discussion on historical SNA by offering an overview of the different kinds of possible explorations, from purely qualitative to a data-driven approach to networks based on large datasets. On the other, it also represents a challenge because it possibly endangers our effort to build a shared methodological framework. Overall, we believe it confirms the flexibility of SNA and its adaptability to different sources, periods, and research questions.

In editing this volume, we share Scott and Carrington's approach to social network analysis. They employ it as a structural paradigm, a means of conceptualizing and analyzing social interactions, shaping the lens

<sup>4</sup> From “the movies they see, which products they purchase, ... whether they protest, and so forth”, Jackson, *Social and Economic Networks*, there 17.

<sup>5</sup> The editors would like to acknowledge the generous funding of the Marcus & Amalia Wallenberg Foundation (2020–2023), MAW2018.0015.

through which we observe historical facts and address historical questions, as well as the way data is collected and analyzed.<sup>6</sup> The abovementioned variety originated from the different answers each author gave to the questions “What is SNA?” and “How can it help you in your research?”. The aim was to address two main discussions: the first one concerns the functioning of credit markets; the second one relates instead to the use of social network analysis and, more generally, digital humanities methodologies in historical research.<sup>7</sup>

Eventually, this volume poses more questions than it answers. It represents a first attempt to coordinate the work of different scholars working on credit networks and promote a series of original studies on the topic. The book emphasizes topics such as economic behavior and network interaction that have not yet received sufficient attention, especially in the pre-industrial period. Finally, it highlights gaps in the literature that still need to be addressed, stimulating new research in the field.

This brief introduction wants to highlight a few important points. The next section provides the reader with some basic notions about social network analysis and its origins as a field of study. The following part focuses more specifically on pre-industrial credit networks. Overall, the introduction highlights key references that could be beneficial for those who are approaching the theme of SNA for the first time, but it does not focus on the theory of such a method, which is extensively treated in Elise Dermineur’s chapter. Finally, the last section introduces the various chapters, explains how they relate to each other, and points out the main ideas behind the whole book project.

## 1 A WORLD OF NETWORKS

Studying the dynamics of human networks helps us to address many issues related to the mechanisms regulating our world. For instance, the specific position of an individual in their social network tells a lot about their influence and power. Additionally, the structure of a network allows us to foresee the dynamics underlying the spread of information,

<sup>6</sup> Peter J. Carrington and Scott John., ‘Introduction’, in: John Scott and Peter J. Carrington (eds), *The SAGE Handbook of Social Network Analysis*, (Los Angeles, 2011), 1–9, there pp. 5–6.

<sup>7</sup> The issue is discussed in Kerschbaumer et al., ‘Introduction’, there p. 4.

ideas, and even diseases—exemplified in the case of the recent COVID-19 pandemic.<sup>8</sup> Overall, adopting a network perspective is crucial to better comprehend a variety of social and economic phenomena, as well as natural ones. Indeed, as stated by Alexandra Marin and Barry Wellman, “causation is not located in the individual but in the social structure”.<sup>9</sup> Individuals are embedded in social networks, they influence and in turn are influenced by one another’s actions.

The ideas of networks and the acknowledgment of the importance of relationships between separated individuals have ancient roots. The analysis of social networks, however, especially visualized through a series of lines and dots, is more recent.<sup>10</sup> The first example of the use of graph theory, as we know it today, is considered to be Euler’s attempt to solve the renowned problem of the seven bridges of Königsberg (1736). The city of Königsberg (now Kaliningrad) was formed by two large islands connected to each other and to both banks of the river by seven bridges. The challenge was to walk through the entire city, crossing each of those bridges exactly once. Euler approached the problem from a graph theory perspective and represented the various areas that composed the city and the bridges connecting them as vertices and edges. In so doing, he demonstrated that the graph had more than two vertices with an odd number of edges, proving that there was no possible solution to the problem.<sup>11</sup>

The fascination for the nature of the relations that link individuals to each other crossed the boundaries of academia. For instance, Frigyes Karinthy’s short story titled “Chain-links” (1929) was able to captivate the imaginations of future generations of sociologists and mathematicians.<sup>12</sup> The play introduces the core idea that lies behind the theory of

<sup>8</sup> Matthew O. Jackson, *The human network: how we’re connected and why it matters* (London, 2019), there p. 4.

<sup>9</sup> Alexandra Marin and Wellman Barry, ‘Social Network analysis: an introduction’, in John Scott and Peter J. Carrington (eds), *The SAGE Handbook of Social Network Analysis* (Los Angeles, 2011), 11–26, there 13. See also Niall Ferguson, *The Square and the Tower: Networks and Power, from the Freemasons to Facebook* (New York, 2018).

<sup>10</sup> For a detailed analysis of the development of SNA see Carrington and Scott, ‘Introduction’, 1–9.

<sup>11</sup> Carrington and Scott, ‘Introduction’, there 4.

<sup>12</sup> Frigyes Karinthy, ‘Chain-links’, in: Mark Newman, Albert-László Barabási, and Duncan J. Watts (eds), *The structure and dynamics of networks* (Princeton, 2011), 21–26; Jackson, *The human network*, there 54.

the “six degrees of separation”, later further explored in John Guare’s play of the same name.<sup>13</sup> The basic idea is that “nobody ... [needs] more than five links in the chain to reach, just by using the method of acquaintance, any inhabitant of our planet”.<sup>14</sup> “Chain-links” suggests that the world is shrinking because of technological advancements, and all individuals are now connected through short chains of acquaintances.

This theory was then tested by the famous social psychologist Stanley Milgram with his “small-world experiment”. He demonstrated that random people in the United States are typically only five or six steps away from each other.<sup>15</sup> The small-world theory was later developed by Duncan Watts, who highlighted that such structures describe the most common type of human network, in which most nodes are not directly connected but can reach any other node within a limited number of steps, facilitated by intermediary nodes.<sup>16</sup>

Overall, SNA as a branch of knowledge is comparatively recent and developed gradually over time. The discipline expanded and spread across various fields of research, ranging from psychology and sociology, to mathematics, and physics. For a long time, however, it remained largely unnoticed by historians. Still, in the late 1990s, Charles Wetherell highlighted the persisting unfamiliarity of historians with such a method, and wanted to contribute to its diffusion. He provided both a theoretical explanation of SNA and a practical demonstration of its application. On the theoretical side, Wetherell focused on the interdependency of actors in the past, and its importance in the dissemination of information. On the empirical one, he applied SNA to investigate the relationship between kinship and communities in a nineteenth-century village situated in modern Latvia. He highlighted the structured nature of networks,

<sup>13</sup> John Guare, *Six Degrees of Separation: A Play* (Random House, 1990).

<sup>14</sup> Karinthy, ‘Chain-links’, there 25.

<sup>15</sup> For a detailed description of the experiment see Jackson, *Social and Economic Networks*, there 86.

<sup>16</sup> Duncan J. Watts, ‘Networks, dynamics, and the small-world phenomenon’, in: *American Journal of sociology*, 105:2 (1999), 493–527; Duncan J. Watts, and Strogatz Steven H., ‘Collective dynamics of ‘small-world’ networks’, in: *Nature*, 393 (1998), 440–442. See also Albert Reka and Albert-Laszlo Barabasi, ‘Statistical mechanics of complex networks’, in: *Review of modern physics*, 74 (2002), 48–85, there 48.

which enables scholars to identify and study patterns, crucial in defining the economic, political, and social structure.<sup>17</sup>

The work that probably contributed the most to the spread of SNA in the historical field was authored by the sociologist John Padgett and the political scientist Christopher Ansell. They managed to bring attention to the analysis of social network and boost enthusiasm around the methodology. Their seminal paper “Robust Action and the Rise of the Medici, 1400–1434” had a relevant influence on historical research and stands as one of the earliest—and one of the best-known—applications of social network analysis to historical sources.<sup>18</sup>

The study delves into the intricate marriage, economic, and patronage network built by Cosimo de’ Medici, and the critical role it had in his rise to power in fifteenth-century Florence. The authors highlight the concept of “robust action” referring to Cosimo’s distinctive style of control. They show that the Medici network comprised two distinct components: individuals with whom the Medici established exclusively economic relations, and other individuals with whom the Medici established marriage alliances. Cosimo’s network was strongly affected by residential patterns and resulted in a highly centralized structure capable of assuring top-down control and enforcing discipline. Relying on SNA, the paper describes the mechanism explaining Cosimo’s influence within Florence, illuminating the complex power dynamics among the Renaissance elite.<sup>19</sup>

Moving alongside the same trajectory, John Padgett studied (alone and in collaboration with other colleagues) late-medieval Florentine society from different perspectives, focusing both on economic and social relationships. In a well-known paper, he joined the debate with Richard Goldthwaite and Anthony Molo regarding the “openness” of the Florentine elites.<sup>20</sup> Using SNA, Padgett examines marriage patterns, family structures, and social mobility in Florence between 1282 and 1494,

<sup>17</sup> Charles Wetherell, ‘Historical social network analysis’, in: *International review of social history*, 43 (1998), 125–144, there 126.

<sup>18</sup> John F. Padgett and Christopher K. Ansell, ‘Robust Action and the Rise of the Medici, 1400–1434’, in: *American journal of sociology*, 98:6 (1993), 1259–1319.

<sup>19</sup> Not by chance, this study is often used as one of the classic examples for the role and relevance of social networks; see, for instance, Jackson, *Social and Economic Networks*, there 18–21.

<sup>20</sup> See John F. Padgett, ‘Open Elite? Social Mobility, Marriage, and Family in Florence, 1282–1494’, in: *Renaissance Quarterly*, 63:2 (2010), 357–411, there 357.

showing both lineage fluidity and alternative phases of strong upward mobility with the admission of new men into the old Florentine elites through weddings.

As mentioned earlier, over the past two decades the use of SNA in historical research has expanded significantly. Recently, the volume by Kerschbaumer et al. has presented the “best practices of HNR (Historical Network Research)” and explored the diverse approaches developing from the application of network analysis to historical data. The excellent book by Kerschbaumer and his co-authors, highly inspirational for this volume, stresses that there is no consensus on the appropriate application of SNA. Historians have adapted the theoretical principles of SNA to their research, to the available sources, and to the specific questions they seek to address.<sup>21</sup> This diversity of approaches (and possibilities) in the context of an always-evolving methodology is well exemplified in this volume.

## 2 PRE-INDUSTRIAL (CREDIT) NETWORKS

Pre-industrial Europe offers fertile ground for the analysis of social networks. Social scientist Karl Polanyi coined the concept of embeddedness to describe the typical economy of pre-industrial society.<sup>22</sup> He claimed that human action is not driven solely by the pursuit of self-interest, but rather embedded in social relations and motivated by a desire for a system of institutions that embodies cultural values. This embeddedness was replaced during the industrial development by the rise of a new “market society”, based on self-regulating markets, and opportunistic behavior by economic agents.<sup>23</sup>

The importance of embeddedness in the pre-industrial world and the role of trust in different aspects of economic and social life are often

<sup>21</sup> Kerschbaumer et al., *The power of networks*; see particularly the introduction for the description of the general approach of the book. The citation is at p. 4.

<sup>22</sup> Karl Polanyi, *The great transformation: the political and economic origins of our time* (Boston, 2001).

<sup>23</sup> Granovetter argues that the transition between an embedded and dis-embedded world has to be reconsidered. As claimed by Granovetter, “Actors do not behave or decide as atoms outside a social context, nor do they adhere slavishly to a script written for them”, their actions “are instead embedded in concrete ongoing system of social relations”. Mark Granovetter, ‘Economic action and social structure: The problem of embeddedness’, in: *American Journal of Sociology*, 91:3 (1985), 481–510, there 487.

acknowledged in the literature. Abundant research focuses on international finance and global commerce, describing the specific social norms and hierarchies that fostered cooperation in these large networks. This clearly appears in Ana Sofia Ribeiro’s recent study on the trading network revolving around the Spanish merchant Simon Ruiz, or the analysis of the Armenian merchant network by Alexandr Osipian. Both authors analyze in detail the mechanisms implemented to establish and maintain trust between the members of a network, and possible punishment for misconduct—usually the exclusion from the network itself.<sup>24</sup>

The abovementioned concept of embeddedness explains well the social mechanisms that sustained peer-to-peer credit transactions in pre-industrial Europe. Indeed, in premodern societies, before the establishment and diffusion of banks and the so-called “institutionalization of trust”, the networks of credit involving family, friends, and neighbors held significant importance.<sup>25</sup> They acted as a safety net for individuals and allowed them to mitigate risks and uncertainty, offering a partial solution to problems that are now addressed by the welfare state.<sup>26</sup>

<sup>24</sup> Ana S. Ribeiro, ‘The evolution of norms of trade and financial networks in the first global age: the case of the Simon Ruiz’s network’, in: Catia Antunes and Amelia Polonia (eds), *Beyond Empires. Global, Self-Organizing, Cross-Imperial Networks, 1500–1800* (Leiden-Boston, 2016), 12–40; Alexandr Osipian, ‘Debt, Trust and Reputation in Early Modern Armenian Merchant Networks’, in: Laura Kolb and George Oppitz-Trotman, *Early Modern Debts. 1550–1700* (London, 2020), 153–180.

<sup>25</sup> Quote D’Maris Coffman, Cinzia Lorandini and Marcella Lorenzini, ‘Introduction’, in: D’Maris Coffman, Cinzia Lorandini and Marcella Lorenzini (eds), *Financing in Europe. Evolution, Coexistence and Complementarity of Lending Practices from the Middle Ages to Modern Time* (Cham, 2018), 1-19, there p 3. See for instance Elise Dermineur, ‘Rethinking debt: The evolution of private credit markets in pre-industrial France’, in: *Social Science History*, 42:2, (2018), 317–342; Elise Dermineur, ‘The evolution of credit networks in pre-industrial Finland’, in: *Scandinavian economic history review*, 70:1 (2022), 57-86; Craig Muldrew, *The Economy of Obligation: The Culture of Credit and Social Relations in Early Modern England* (New York, 1998); Elise Dermineur and Matteo Pompermaier, ‘Credit Networks in renaissance Florence: revisiting the catasto of 1427’, in: *Rises – Ricerche di storia economica e sociale*, 8:1-2 (2022), 89-110. Elise Dermineur, ‘Trust, norms of cooperation, and the rural credit market in eighteenth-century France’, *Journal of Interdisciplinary History*, 45:4 (2015), 485-506.

<sup>26</sup> Green and Owens propose a broader definition of welfare that includes direct or indirect support from kin and family and is not only intended as a provision for the poor that comes from the state. David R. Green and Alastair Owens (eds.), *Family welfare: gender property, and inheritance since the seventeenth century* (Westport, 2004).



Craig Muldrew and Laurence Fontaine highlight the relevance of trustworthiness based on personal knowledge to support and promote credit transactions. Both scholars investigated the social relationships that linked individuals involved in credit transactions. They assessed the underlying mechanisms of a loan, stressing the role of trust and reciprocity.<sup>27</sup> Drawing from E.P. Thompson's notion of "The Moral Economy of the English Crowd", Craig Muldrew significantly advanced the discourse on credit networks. He focuses on the moral dimension of credit and argues that "the culture of the early modern market was inherently moral".<sup>28</sup> His central thesis challenges the notion of self-interest, as described by Adam Smith, and supports the idea that individuals do not perceive their actions through such a lens. Muldrew asserts that while profit and success were important, they could only be attained through cooperation within a framework of social relationships sustained by trust. The market relations were "based on moral knowledge about others", strong connections that bound communities together.<sup>29</sup> Despite not relying on graph theory per se, the network discourse is critical in such an interpretation of human relations.

In her book "The Moral Economy", Laurence Fontaine, who also contributes a chapter to this volume, partly delves into the lower strata and their credit behavior. She focuses on informal credit, which formed the backbone of the everyday economy; credit serves as a social bond grounded in personal relationships, where reputation and trust hold significant importance. Fontaine highlights the widespread indebtedness that characterized pre-industrial societies, where the terms of the transaction and the expectations of borrowers and lenders were usually agreed upon by the parties involved.<sup>30</sup> Echoing Muldrew's analysis, she considers credit an obligation that strengthens social bonds, even when the prospects of repayment are slim. From this perspective, credit not only serves an economic function but also plays a crucial role in shaping social relationships.

<sup>27</sup> Laurence Fontaine, *The Moral Economy. Poverty, credit and Trust in Early Modern Europe* (Cambridge, 2014); Muldrew, *The Economy of Obligation*.

<sup>28</sup> Craig Muldrew, 'Interpreting the market: the ethics of credit and community relations in early modern England', in: *Social History*, 18:2 (1993), 163–183, there 169.

<sup>29</sup> Muldrew, 'Interpreting the market', there 169, citation at p. 178.

<sup>30</sup> Dermineur, 'The evolution of credit networks in pre-industrial Finland'.

“The Moral Economy” emphasizes the existence of concentric circles of potential lenders, which encompass family, friends, neighbors, and local elites. These circles mirror the findings of Padgett and McLean’s research on the dynamics of interpersonal credit in Renaissance Florence.<sup>31</sup> Using SNA, the authors show that commercial credit among Florentine companies was strictly linked to non-economic social connections, particularly familial and neighborhood ties. They emphasize that merchant banks operated in a collaborative network and that economic relations were influenced by family dynamics (international banking) and residential patterns (domestic banking). On the same lines, McLean and Gondal examined the circulation of interpersonal credit, further expanding the approach developed by Padgett and McLean.<sup>32</sup> Relying once again on SNA, the authors argue that credit was considered an obligation, very much in line with Muldrew and Fontaine’s findings, and posed challenges in the context of a society based on social connections. The Florentine study emphasizes once again the importance of homophily in credit relations, especially linked to residential patterns.<sup>33</sup>

Graph theory offered a way to measure mathematically the different roles played by individuals in the context of these networks. In fact, some nodes are clearly in a better position to acquire and share information, are able to influence other nodes, and contribute to keeping the whole network connected. An excellent example of these mechanisms comes from a recent study by Abhijit Banerjee et al. on the diffusion of microfinance in Indian villages, which investigates how decisions taken from households—in the specific case, to switch or not to microfinance—are influenced by their social networks.<sup>34</sup> Before Banerjee et al., Mark Granovetter’s paper on “The strength of weak ties” demonstrated how

<sup>31</sup> John F. Padgett and Paul D. McLean, ‘Economic credit in renaissance Florence’, in: *The Journal of Modern History*, 83:1 (2011), 1–47.

<sup>32</sup> Paul D. McLean and Neha Gondal. ‘The circulation of interpersonal credit in Renaissance Florence’ in: *European Journal of Sociology/Archives Européennes de Sociologie*, 55:2, (2014), 135–176.

<sup>33</sup> See also Dermineur and Pompermaier, “Credit Networks in Renaissance Florence”; this topic is treated in several chapters in this volume (among others, Dermineur, Pompermaier, Wasserman, Nicolussi-Köhler).

<sup>34</sup> Abhijit Banerjee, Arun G. Chandrasekhar, Ester Duflo, and Matthew O. Jackson, ‘The diffusion of micro finance’, in: *Science*, 341:6144 (2013), 1,236,498.

different nodes and connections in a network facilitate the spread of information. Granovetter argues that acquaintances are more influential than close friends in spreading information, because of the structure of their connections: rumors or information diffused through strong ties are likely to be confined, while those transmitted through weak ties cover more extensive social ground. Relevant in the field is also Ronald Burt's analysis of "structural holes", which shows the negative effects arising from the disappearance of certain nodes.<sup>35</sup> These holes are gaps between individuals who possess complementary sources of information: intermediaries represent those pivotal nodes within the network whose absence would significantly damage overall interconnectivity.

In the specific case of credit networks, intermediaries serve as connectors between the supply and demand of credit. They solve issues of asymmetric information by gathering pertinent data on prospective lenders and assessing borrowers' creditworthiness, and their collaterals. Research on intermediaries flourished after the study of Hoffman et al. on notarial intermediation in France between the seventeenth and nineteenth centuries. They shed light on the complex network of information that revolved around notaries, facilitating credit exchanges. Notaries not only connect demand and offer, but they actively share surplus borrowers or lenders among their peers, resulting in borrowers and lenders moving from one location to the other following the orchestrated intermediation of notaries. From this point of view, French notaries provide us with a clear demonstration of how credit intermediation worked and show the networks that linked borrowers, lenders, and intermediaries.<sup>36</sup>

<sup>35</sup> Ronald S. Burt, *Brokerage and Closure: An Introduction to Social Capital* (Oxford, 2005); Ronald S. Burt, 'Structural holes versus network closure as social capital', in: Nan Lin, Karen Cook, Ronald S. Burt (eds.) *Social capital* (New York, 2017), 31–56.

<sup>36</sup> See Philip T. Hoffman, Gilles Postel-Vinay, and Jean-Laurent Rosenthal, 'What Do Notaries Do? Overcoming Asymmetric Information in Financial Markets: The Case of Paris, 1751', in: *Journal of Institutional and Theoretical Economics (JITE) / Zeitschrift Für Die Gesamte Staatswissenschaft* 154:3 (1998), 499–530; about the notarial intermediation in Paris, see Philip T. Hoffman, Gilles Postel-Vinay, and Jean-Laurent Rosenthal, *Priceless markets: the political economy of credit in Paris, 1660–1870* (Chicago, 2000); Philip T. Hoffman, Gilles Postel-Vinay, and Jean-Laurent Rosenthal, *Dark Matter Credit: The Development of Peer-to-Peer Lending and Banking in France* (Princeton, 2019). For a broader perspective on France and a discussion about a "Network of Knowledge", see Hoffman et al., *Dark Matter Credit*, chapter 4. Also, see in this book Giuseppe De Luca and Marcella Lorenzini, 'Notary lending networks in northern Italy in the eighteenth and

This brief summary highlights one important feature that characterized pre-industrial credit markets, their variety. It concerns the actors involved, the context (urban and rural), the tools used to supply loans, the intermediated or non-intermediated nature of transactions, and so forth. This volume reflects well such a variety. We believe that all authors successfully highlight several relevant aspects of pre-industrial credit markets, shedding light on the basic mechanisms that regulated them.

It is now clearer why the earlier mentioned diversity is one of the strengths of this volume: it allows us to explore and compare both rural and urban contexts, peer-to-peer and intermediated transactions, stressing the role of several professional categories, such as notaries, merchants, and moneychangers. A diversity that proves fundamental to describe what was an articulated human action. Overall, SNA appears for what it is: a useful method to simplify the complexity and uncover the mechanisms that lie behind human action. The diverse use of such methodology, be it more qualitative or quantitative, appears as the result of the prevalence of historical questions and material over the research method.<sup>37</sup>

### 3 OVERVIEW AND AIMS OF THE BOOK

This volume has several objectives. First, as stated above it represents a first attempt to coordinate the work of different scholars working on credit networks in past societies and promote a series of original studies on the topic. The different chapters offer a broad overview of the topic, emphasizing international and long-term comparisons. The various authors center their studies on specific actors (professional or social groups), in both urban and rural contexts, stressing the relevance of these networks in allocating financial resources. As in all first attempts, the volume aims to open the path for further research on the same line. Second, despite a growing literature, the emphasis on economic behavior and network interaction has not received sufficient attention, especially regarding the pre-industrial period. The book aims to tackle this issue and explore the possibilities offered by SNA for the study of past financial markets and networks. Third, we hope this volume will also encourage the

nineteenth centuries'; Ruben Peeters and Rogier van Kooten, 'Looking for dark matter credit: exploring notarial credit markets in Antwerp and its surroundings ca. 1835'.

<sup>37</sup> The issue is discussed in Kerschbaumer et al., 'Introduction'.

further diffusion of SNA among historians. We believe it offers a valuable guide for a broad audience of historians, who can assess how the same methodology is employed using source material.

At the same time, the book also problematizes the methodology and highlights its shortcomings. Indeed, visualization and statistical analysis allow us to draw a picture of social relations and social life. Yet, as we will see, social network analysis is ill-equipped to grasp and analyze the subtleties and complexities of human relations. For example, power relations, a typical feature of credit relations, are difficult to perceive even with the help of a visual interface. Edges and nodes do not render the depth, complexity, and essence of interpersonal relationships. The qualitative aspect of these relationships needs to be found through other (more traditional?) methods of inquiry and archival evidence.<sup>38</sup>

The volume contributes to offering different interpretations regarding how a network perspective can facilitate the study of credit networks. Is SNA a strictly mathematical approach? Or rather, a lens through which to observe, from a more qualitative perspective, historical and economic phenomena? Historians may face constraints due to the nature of the sources they have access to, which can significantly impact their analytical method.<sup>39</sup> In some cases, they are fortunate to work with exceptionally detailed sources, enabling the application of quantitative and mathematical methodologies. For instance, in this volume, we can highlight Ruben Peeters and Rogier van Kooten's study of Belgian notaries, Louis Bissières' examination of the network of an American merchant, and Matteo Pompermaier's work on the Florentine *catasto*. In other cases, authors are limited by their sources to employing more qualitative methods but still focus on individuals' interdependencies. This is exemplified in the work of Laurence Fontaine, Hannah Robb, and Stephan Nicolussi-Köhler. Additionally, some authors adopt a middle-ground approach, utilizing SNA to a limited extent as a tool to address specific aspects of their research and to address their research questions.

The volume starts with Elise Dermineur's piece, which focuses on the SNA methodology and its two main approaches: network visualization

<sup>38</sup> Dermineur and Pompermaier, 'Credit Networks in renaissance Florence', there 175–176.

<sup>39</sup> Social Networks as a perspective, the sociogram is only visual representation that is not always possible nor always needed. Discussion on the method, use of sociogram see Lemerrier, 'Analyse de reseaux et histoire', especially pp. 90–91.

and graph theory. The chapter aims to guide historians taking their first steps with SNA: it offers an overview of network analysis at the macro, meso, and micro levels. The author highlights the advantages of graph theory, describes the meaning of several indexes, and the use of different measures. Dermineur emphasizes the advantages of graph theory, explains various indexes' meanings, and discusses centrality measures. Yet, she also addresses three key challenges in SNA: the complex nature of ties between individuals, the dynamic nature of relationships, and the transitivity assumption. This chapter serves as a comprehensive methodological introduction, even though not all papers in the book utilize graph theory and mathematical approaches.

The volume follows with three different chapters that adopt a network perspective without developing any quantitative analysis. Laurence Fontaine's piece offers a comprehensive qualitative examination of the mechanisms underlying the formation and maintenance of networks. The chapter builds upon her research on the moral economy, and focuses on how individuals and communities perceive, explain, and enforce economic practices according to moral principles and societal norms.<sup>40</sup> Fontaine explores how individuals form networks to cope with uncertain futures, and discusses the importance of trust and reputation in establishing interpersonal networks, with a specific focus on merchants over a long period.

The chapters of Hannah Robb and Stephan Nicolussi-Köhler share limitations in the source material that does not allow them to employ a quantitative approach. Still, they develop a fascinating network analysis in two different contexts. Robb's chapter delves into the involvement of women in peer-to-peer credit networks in early modern England. It sheds light on how married women played a significant role in everyday credit transactions, particularly in rural areas. Through depositions, Robb examines the presence of women in these networks, both as lenders and borrowers. An intriguing hypothesis explored is the impact of women's marital status: the author demonstrates that marriage provided women with greater movable domestic wealth and a crucial "tactile knowledge" essential for accessing the credit market. Drawing from various sources, Robb conducts a qualitative analysis of credit networks, emphasizing

<sup>40</sup> Fontaine, *The Moral Economy*.

gendered practices and the connections between local and broader credit networks.

Stephan Nicolussi-Köhler studies instead the credit network of the village of Laas, situated in modern South Tyrol, in the late fourteenth century. Drawing from notarial records, the author examines in detail the network of credit transactions within the village, and its connections to the larger markets in the nearby cities, particularly those revolving around the merchants residing in Merano. Nicolussi-Köhler highlights the role of notaries as intermediaries in resolving information asymmetries and provides insights into the mechanisms governing local credit markets, emphasizing key nodes in the village's credit network.

The two following chapters have in common their focus on ego-networks, i.e., networks centered around a particular individual. Alberto Feenstra studies the capital market in the Netherlands of the eighteenth century and highlights how the province of Friesland, a province located in the country's northern part, accessed the Amsterdam capital market for borrowing. The chapter delves into the relationships between the financial organization of provinces and the evolution of payment methods, emphasizing the significance of local brokers as informal financial intermediaries. Louis Bissières investigates instead the network of Levi Hollingsworth, an important merchant who operated in Philadelphia in the 1780s. Analyzing Hollingsworth's account book, Bissières reveals an intense circulation of goods and credit across the Atlantic Ocean. Through social network analysis, Bissières delves into Hollingsworth's role within his merchant network, discerning varied uses of credit among his associates. The author uncovers a complex structure built on trust, manifested in diverse relationships between Hollingsworth and his associates. Social network analysis proves instrumental in highlighting nodes' positions and the implications of specific roles within the merchant network.

The next three papers focus on the role of specific groups or actors in a network. Moving alongside the path traced by Bissières' study, David Carvajal and Matteo Pompermaier employ a rather quantitative approach to SNA. Their chapters share an interest in the same professional category—the moneychangers—despite focusing on two different periods and contexts. Carvajal investigates the Castilian credit market during the sixteenth century, focusing on relevant regional fairs. Using notarial sources, he traces credit networks among different moneychanger communities attending fairs, examining the influence of homophily in financial transactions, especially the impact of family and geographical

networks on credit networks. Matteo Pompermaier focuses instead on the interpersonal credit market in fifteenth-century Florence, with a particular emphasis on the role of the moneychangers. Relying on the Florentine Catasto of 1427, he maps the credit market within a specific area of Florence (the *gonfalone* Nicchio). Through social network analysis, Pompermaier illustrates how moneychangers served as crucial connectors in the credit network, enhancing market efficiency by bridging various communities and overcoming information asymmetries.

Afterward, Martin Wasserman's contribution shifts to nineteenth-century Argentina and explores the diffusion of checks as a means of payment in Buenos Aires between 1823 and 1826. Through both qualitative and network perspectives, Wasserman investigates the reasons behind the diffusion and acceptance of checks as a means of payment and stresses the key role of specific nodes involved in this network of transactions. The chapter illustrates how influential actors within a network can drive significant institutional changes in the financial landscape.

The last two chapters study the intermediary function of the same actors, the notaries. Giuseppe De Luca and Marcella Lorenzini examine notarial credit in the Northern part of Italy. They focus on the Milanese notaries, who were central figures in large credit networks, linking various locations and facilitating transactions between creditors and borrowers. Similar to their French counterparts, Milanese notaries acted as matchmakers between creditors and debtors, a critical function in the context of markets where the banking sector was not yet developed. Through an extensive database, the authors also retrace the ego-networks of some notaries to show how their brokerage activity worked in detail. They investigate the credit activity, focusing on collateral and interest rates, and show how and why the notaries were able to play this intermediary role.

Finally, Ruben Peeters and Rogier van Kooten look for "dark matter credit" in Belgium in the nineteenth century. To this end, the authors employ geographical mapping and social network analysis to examine the notarial credit market in Antwerp and the surrounding areas. They are particularly interested in investigating notarial intermediation and measuring the transactions established between actors residing in the city and its periphery. As was the case of De Luca and Lorenzini's chapter, this paper takes inspiration from Hoffman et al. research on French notaries, and adds to the exploration of notarial credit intermediation, expanding beyond the French context. Not by chance, the chapter recalls the title of a book by Hoffman et al., which highlights the existence of a "big debt"



that despite its size remained unnoticed.<sup>41</sup> Peeters and van Kooten’s findings underscore the dynamic nature of Antwerp’s credit market and its connections, not only with surrounding regions but also within Belgium and internationally.

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<sup>41</sup> “It is like the dark matter that makes up some eighty-five percent of the universe but cannot be directly observed”, Hoffman et al., *Dark Matter Credit*, there 1.

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