

UNDERSTANDING MATTESSICH  
AND IJIRI: A STUDY OF  
ACCOUNTING THOUGHT

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STUDIES IN THE DEVELOPMENT OF  
ACCOUNTING THOUGHT VOLUME 21

**UNDERSTANDING  
MATTESSICH AND IJIRI:  
A STUDY OF ACCOUNTING  
THOUGHT**

BY

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INVESTOR IN PEOPLE

*To R. Mattessich and Y. Ijiri (1935–2017), in memoriam;  
And to Adela and Misael*

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# CONTENTS

|   |             |
|---|-------------|
| LIST OF ABBREVIATIONS   | <i>ix</i>   |
| LIST OF FIGURES   | <i>xi</i>   |
| LIST OF TABLES  | <i>xiii</i> |
| FOREWORD  | <i>xv</i>   |
| CHAPTER 1 INTRODUCTION  | <i>1</i>    |
| CHAPTER 2 ON APPROACHES FOR ANALYZING<br>INTELLECTUAL WORK      | <i>15</i>   |
| CHAPTER 3 AN ILLUSTRATION OF STUDIES<br>IN ACCOUNTING THOUGHT   | <i>25</i>   |
| CHAPTER 4 R. MATTESSICH: A COMBINATION<br>OF ACADEMIC INTERESTS | <i>53</i>   |
| CHAPTER 5 THE SEARCH FOR A GENERAL<br>THEORY OF ACCOUNTING      | <i>99</i>   |
| CHAPTER 6 IJIRI AND ACCOUNTABILITY                              | <i>141</i>  |
| CHAPTER 7 HOW CAN CONVENTIONAL<br>ACCOUNTING BE PRESERVED?      | <i>177</i>  |
| CHAPTER 8 CONCLUSION  | <i>215</i>  |
| REFERENCES  | <i>225</i>  |
| INDEX   | <i>257</i>  |

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## LIST OF ABBREVIATIONS

|       |  |
|-------|--|
| AAA   | American Accounting Association                    |
| AAM   | <i>Accounting and Analytical Methods</i>           |
| AHJ   | <i>Accounting Historians Journal</i>               |
| AICPA | American Institute of Certified Public Accountants |
| APB   | Accounting Principles Board                        |
| AOS   | <i>Accounting, Society &amp; Organizations</i>     |
| BAR   | behavioral accounting research                     |
| CAPM  | capital asset pricing model                        |
| CMU   | Carnegie Mellon University                         |
| CPA   | Certified Public Accountant                        |
| EMH   | efficient market hypothesis                        |
| FASB  | Financial Accounting Standards Board               |
| FIFO  | first in, first out                                |
| GAAP  | generally accepted accounting principles           |
| GSIA  | Graduate School of Industrial Administration       |
| HC    | historical cost                                    |
| HCD   | historical cost less depreciation                  |
| IASB  | International Accounting Standard Board            |
| ICGN  | International Corporate Governance Network         |
| IFRS  | International Financial Reporting Standards        |
| JAE   | <i>Journal of Accounting and Economics</i>         |
| JAR   | <i>Journal of Accounting Research</i>              |
| LIFO  | last in, first out                                 |
| OR    | operations research                                |
| ORSA  | Operations Research Society of America             |
| PCAOB | Public Company Accounting Oversight Board          |
| PW    | Price Waterhouse & Co.                             |
| RAE   | resource agent event                               |
| SEC   | Securities Exchange Commission                     |
| SFAS  | statement of financial accounting standards        |
| TAM   | <i>Theory of Accounting Measurement</i>            |
| TAR   | <i>The Accounting Review</i>                       |

|      |  |
|------|--|
| TFV  | true and fair view                     |
| UBC  | University of British Columbia         |
| UNC  | Universidad Nacional de Colombia       |
| US   | United States of America               |
| XBRL | extensible business reporting language |
| YMCA | Young Men's Christian Association      |

# LIST OF FIGURES

|        |  |     |
|--------|--|-----|
| Fig. 1 | General Scheme for Analyzing AAM and TAM .....           | 22  |
| Fig. 2 | Richard Mattessich .....                                 | 60  |
| Fig. 3 | AAM Scheme (Mattessich, 1964a) .....                     | 103 |
| Fig. 4 | Yuji Ijiri.....  | 142 |
| Fig. 5 | TAM Scheme (Ijiri, 1975a).....                           | 178 |
| Fig. 6 | Continuity in Financial Accounting Theory in the US..... | 192 |
| Fig. 7 | Incomplete Transactions .....                            | 196 |

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## LIST OF TABLES

|          |  |     |
|----------|--|-----|
| Table 1  | AAM, TAM, and Studies in Accounting Thought .....                    | 43  |
| Table 2  | Identities of Accounting Systems .....                               | 82  |
| Table 3  | Summary of the Formation of Accounting Assumptions .....             | 106 |
| Table 4  | Income and Cost of Capital .....                                     | 121 |
| Table 5  | Instrumental Hypotheses According to Mattessich (1995a) ..           | 124 |
| Table 6  | Summary of Valuation Rules in Early US Accounting<br>Theorists ..... | 126 |
| Table 7  | Summary on Capital Theory .....                                      | 129 |
| Table 8  | List of Courses Taken by Ijiri at the University of Minnesota...     | 145 |
| Table 9  | Chambers versus Ijiri .....  | 161 |
| Table 10 | History of Accountability Concept .....                              | 170 |
| Table 11 | An Application of Ijiri's Valuation Rules .....                      | 193 |
| Table 12 | Transactions with No Initiator or Terminator .....                   | 198 |

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# FOREWORD

As García describes in her background and acknowledgements, *Understanding Mattessich and Ijiri: A Study of Accounting Thought* is the product of a research program that began almost a decade ago as a doctoral student. This project has then evolved through her appointment as an Assistant Professor of Accounting at the National University of Colombia and a succession of visits to (and collaborations with faculty from) the Universities of Carnegie Mellon, Mississippi, Queensland, and Yale.

García was drawn to the study of the development of accounting thought because of her training in economics in which it is still common to revisit the ideas of influential economists of the past, such as Adam Smith, Irving Fisher, and John Maynard Keynes (e.g., Ashraf, Camerer, & Loewenstein, 2005; Dimand & Geanakoplos, 2005; Skidelsky, 2010). In the field of accounting, however, research agendas of this kind (e.g., Bryson, 1976; Buckner, 1975; Roberts, 1975) began to disappear with the turn toward capital market research that emerged at the Universities of Chicago and Rochester in the 1970s and critical accounting research which emerged in Europe shortly thereafter (for more about this argument, see Persson, Radcliffe, & Stein, 2017).

With this shift in accounting research as the historical backdrop, García's book represents an important line of inquiry that is re-emerging through Gary Previts' editorship of Emerald Group Publishing's Studies in Development of Accounting Thought series. The aim of this series is to inform readers about the historical foundations of the accounting discipline through the exploration of the lives and contributions of pre-eminent individuals in our field. Recent studies have revisited the contributions of such individuals as the co-founder of the first North American doctoral program in accounting, A. C. Littleton (Persson, 2016); the prominent critic of the accounting profession, Abraham J. Briloff (Criscione, 2009); and the longest serving AICPA Chief of Staff, John L. Carey (Barfitt, 2007).

In this book, García sets out to explore the intellectual foundations of two of the most important publications during the golden age of *a priori* research in accounting that preceded the turn to capital market research in NA.<sup>1</sup> The

first one is Richard Mattessich's *Accounting and Analytical Methods* (AAM) which was published in 1964. Mattessich was born in Trieste, Italy, in 1922 but grew up in Vienna, Austria. He graduated with a Doctor of Economic Sciences from the Vienna University of Economics and Business in 1945 and with the arrival of peacetime took up employment with the Austrian Institute of Economic Research. This eventually led to academic appointments in Switzerland and Canada before accepting a tenured professorship position at the University of California at Berkeley in 1959 (for more about his life, see Mattessich, 1995b; McWatters, 1994). At Berkeley, Mattessich joined fellow *a priori* scholars such as George J. Staubus, Maurice Moonitz, and Robert T. Sprouse in what was arguably one of the most influential accounting departments in the Western US (for more about this period, see Moonitz, 1986). And it was in this environment that Mattessich wrote his *magnum opus*, AAM, in which he attempted to develop a "unified frame" of accounting that encompass both the accounts of the national economy and those of publicly traded companies.

The second publication is Yuji Ijiri's *Theory of Accounting Measurement* (TAM) which was published in 1975. Ijiri was born in Kobe, Japan, in 1935 and graduated from Ritsumeikan University with a Bachelor of Laws before moving abroad to complete a master's degree at the University of Minnesota in 1960. This was followed by a Ph.D. in Industrial Administration from Carnegie Mellon University (CMU) in 1963, an initial placement at Stanford University, and then the return to his doctoral alma mater as a tenured professor in 1967. At Carnegie Mellon, Ijiri joined one of the most prominent and interdisciplinary industrial administration faculties in the Eastern US. With the exchange of ideas and encouragement from colleagues such as Herbert A. Simon, Richard M. Cyert, and William W. Cooper, Ijiri's research spanned the entire spectrum of accounting and business and often drew insights from mathematics and statistics during a period in which such overtures were just emerging (for more about Ijiri and this influence on him, see Sunder & Glover, 2017). TAM embodied the very best of this interchange of ideas and was considered avant-garde in its defense of traditional historical cost accounting from the perspective of measurement theory and logical deduction.

Both AAM (e.g., Cooper, 1966; Porter, 1965; Weinwurm, 1966) and TAM (Brief, 1976; Deskins, 1977; Nelson, 1976) received rave reviews in the accounting literature. Ijiri (1966a) described AAM as an "...excellent introduction to the new area into which accounting in the future should be developed..." (p. 293) and Beaver (1976) concluded that TAM was an "...outstanding book, which rightfully will influence thought in accounting for several years" (p. 531). Despite this initial attention and with the exception of a brief debate

between Chambers (1966a) and Mattessich (1967), the shift toward capital market research meant that both publications had fallen to the wayside by the 1980s. García's book is therefore an important contribution. It brings these works back into focus in the accounting literature, and it also offers what is a first attempt at a comprehensive analysis of the intellectual influences that underpin them. As such, this author considers *Understanding Mattessich and Ijiri: A Study of Accounting Thought* to be an important part in a line of scholarship that is aimed at renewing our interest in *a priori* accounting research and the pursuit of improving accounting practice through scholarship.

Martin Persson Western University, London (Canada)

## BACKGROUND AND ACKNOWLEDGMENTS

This book has its origins in my teaching at the Universidad Nacional de Colombia (UNC). When I began to teach accounting theory, I was interested in appropriate content for undergraduate students in public accountancy. Since I had read eminent authors during my economics studies, I applied this idea to familiarize accounting students with some of the work of the most distinguished authors on accounting. On beginning my doctoral studies, I found out that I would be allowed to carry out research on some of these works. After carrying out the research to its present state, I am aware that this kind of study can be classified in a specialized field apart from accounting history and accounting theory.

As in all research, the present work was made possible through the support of a large number of people and various institutions. I owe my deepest gratitude to Professors Shyam Sunder and Dale Flesher who encouraged me to turn my dissertation into a book. They have been extremely generous and supportive. Thanks to them, the reader has this book in his hands. Thanks to Professor Sunder for introducing me to Professors Flesher, Jon Glover, and Pierre J. Lang, the latter two of whom facilitated my access to the work and archives of Yuji Ijiri at Carnegie Mellon University.

Professor Flesher welcomed me during my internship year, 2009, and on later visits to the Patterson School of Accounting at the University of Mississippi in Oxford, in the summers of 2011 and 2012, and the fall semester of 2016. Here, I must mention that the J. D. Williams Library at the University of Mississippi facilitated my work enormously. I could not be more grateful to Professor Gary Previts for his support for this publication.

At the UNC, I am deeply grateful to my advisor, Professor Luis I. Aguilar and to the members of different Evaluating Committees, Professors Homero

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I visited the University of Queensland (UQ), Yale University, and Carnegie Mellon University (CMU) in 2014. These environments enabled me to continue my learning and obtain a broader view of the scholars I had chosen to study. Julie Walker, UQ, advised me to contact Professor Graeme Dean (The University of Sydney). Professor Dean provided more ideas for revising the manuscript. At Yale University (2014 fall semester), ongoing conversations with Professor Sunder enabled me to take one more step in my research. Diane Whitbread was always very attentive in her administrative guidance. Manjula Shyam, Juan C. Penagos, Yoko Okuyama, Marco

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In the Yuji Ijiri Lectures in the Tepper School of Business (CMU) in June 2017, Ronald Dye set out how old accounting theory was substituted by a theory of disclosure of accounting information. Carol Salerno and Julia Corrin supported me when I visited CMU by providing access to Ijiri's Archives in December 2014. Mara Falk and Marcie Hayhurst were very supportive in obtaining permission to use Yuji Ijiri's photograph. I extend my warm thanks to Yumi Ijiri for her authorization to use this photograph.

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Finally, I am beholden to my family for their moral support and careful attention to the progress of this research. Leonel, Aldemar, Orlando, their wives Adriana, Magda, Yanire, and children facilitated my academic stays in the US and Australia and accompanied me in making this study a reality. I also wish to thank other family members for being always present: Jorge López, Yaqueline Cárdenas, Elvia López, Rosa López, Emelina López, María Zea, Rigoberto García, Maria Elvia Cárdenas, Ismael García, Jorge García, Cecilia Forero, Carmen García, Mireya Medina, Francy López, Judith Parra, Johana Atuesta, Daniel López, and Daniel García.

Lastly, it should be noted that the responsibility for the contents and interpretations in this volume belong fully to the author.

Nohora García, Bogotá, Colombia

## NOTE

1. Nelson (1973) came to define the notion of the golden age of a priori research in accounting, but Gaffikin (e.g., 1988, 2005a, 2005b) has since come to expand upon this period and the works of the authors involved.

# CHAPTER 1

## INTRODUCTION

*“The one thing that matters is the effort.”*

— Antoine de Saint-Exupery

*This chapter justifies the study in two ways. First, the research shows that there has existed a certain disdain about studying distinguished authors such as Mattessich and Ijiri, who have been identified as authors of the golden age of a priori literature in accounting. Second, it sustains the importance of studies in accounting thought for accounting research and the education of practitioners. The need that such studies occupy their own field of research is indicated. Subsequently, the contents of the book are summarized. Finally, some elements in the lives and works of Mattessich and Ijiri are introduced.*

### WHY MATTESSICH AND IJIRI?

Half a century has passed since the *great works* of the so-called a priori literature in accounting were published. However, it seems that all the knowledge that has been retained from this literature is that it existed. In fact, Gaffikin (1996, p. 99) questioned “... why was Richard Mattessich’s work not more widely discussed in the literature?,” and Mattessich (1996b, p. 127) responded to that the scholar who is more familiar than Gaffikin (1996) with Mattessich’s work is Professor Yoshiaki Koguchi of Chuo University.<sup>1</sup> Overall, Mattessich (2002, p. xiv) expressed that the “...accounting revolution of the 1960s and 1970s

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(or ‘the golden age[’] of a priori Accounting as it was called) went through stages of denial, success and neglect. But today it is seen as an influential historical-cultural movement.” Nonetheless, it is likely that such literature of the *golden age* has been largely forgotten and, more significantly, may not have been adequately understood.<sup>2</sup> This volume will elaborate on these points.

When comparing current accounting literature and the literature produced in other social science disciplines, some differences can be observed. While Adam Smith’s ideas continue to be discussed in the fields of philosophy, sociology, and economics,<sup>3</sup> such pioneering accounting academics as Henry R. Hatfield, Théodore Limperg, and Gino Zappa are not discussed in the same way by accounting scholars.<sup>4</sup> This may be taken as a proxy for the lack of interest accounting scholarship shows its foundational authors. Will this situation continue to be accepted?

In the field of economics, there exist a number of academic journals dedicated to the history of economic thought. However, there is no similar academic publication focused on studies in accounting thought.<sup>5</sup> Instead, research appears sporadically in journals oriented to the history of accounting (e.g., *The Accounting Historians Journal*, *Accounting History*, and *Accounting History Review*) or to accounting theory (e.g., *The Accounting Review*, *Accounting, Organizations and Society*, and *Abacus*). Even though some scholars in accounting perform research related to accounting thought, they do so less frequently and less than their colleagues in economics. Moreover, there has been harsh criticism of the current trends in accounting research, particularly after the 2008 financial crisis (Arnold, 2009), and there exists serious concern for the future of accountancy as a profession (Behn, 2012; West, 2003). However, supporting and doing research in accounting thought seems to be an unpopular alternative. Over a century of accounting research and theory development should not be ignored. Past literature could be useful in helping to reorient accounting’s current condition.

In the case of academics such as Raymond Chambers, Richard Mattessich, and Yuji Ijiri, you might imagine the situation to be different.<sup>6</sup> A database titles search covering the 100 years ending in 2016 yielded few results in accounting journals: nine articles discussing Chambers,<sup>7</sup> one for Mattessich (Calvo, 1976), and one for Ijiri (Cooper, Burns, Ijiri, & Trueblood, 1989). Recently Persson (2013) and Persson and Napier (2014, 2015) have been paying more attention to Chambers. In addition, the contributions of the Australian thinker have been reviewed (Al-Hogail & Previts, 2001), but neither Mattessich nor Ijiri has been recently reviewed in North America.

When a search is focused only on Mattessich and Ijiri, it was found that the first author has been less quoted in English articles than the second author.<sup>8</sup>

In other words, it seems that Ijiri's contributions have had a lasting influence on accounting research and Mattessich made groundbreaking efforts, but not to the same level as Ijiri.<sup>9</sup> This finding would be consistent with an opinion noted by Gaffikin (1996, p. 99) when Stephen A. Zeff, referring to the work of Mattessich, speculated that "... 'they' could not understand it." Gaffikin presumed that Zeff's use of "they" referred to the mainstream academic community in North America. Some other interpretations may be put forward. It is possible that his era in accounting research was complete and that his theoretical and methodological contributions were simply not accepted in the field (Gaffikin, 1996).<sup>10</sup> However, it might also mean that the work done by Mattessich was so unconventional that it contravened the status quo in this field. For Mattessich (1995b, p. 134) "...only posterity can decide whether [his] visions will prove to be genuine or whether they were but nebulous fantasies."

Now, if a researcher takes into account evidence from other geographical areas, the literature broadens. In Germany, France, Japan, Italy, Spain, and some Latin American countries, Mattessich's magnum opus has been recognized and followed by several researchers (Mattessich, 1964a, 2002, pp. xv–xvi, 2006, p. iv).<sup>11</sup> Outside North America German scholar Eric Melse was the main discussant of Ijiri. While the seminal publication by Mattessich (1964a) was reprinted in the US (1977, 1979a), translated into German (1970), Japanese (1972, 1975),<sup>12</sup> and Spanish (2002), Ijiri's most widely recognized work only exists in English and Japanese versions.<sup>13</sup> Mattessich (1964a, 2000, 2006) himself tracked his influence on accounting theory. Ijiri's influence remains to be examined. These seminal works have had different trajectories through the different countries for diverse reasons. Academic networks and personality features may explain the differences. Other researchers might be able to test these ideas using archives and social media.

The seminal books *Accounting and Analytical Methods* (AAM) written by Mattessich (1964a) and *Theory of Accounting Measurement* (TAM) by Ijiri (1975a) have been associated with several debates. According to some authors, Mattessich and Ijiri, among others, tried to set rigorous theoretical foundations of accounting (Gaffikin, 1988, 1996, pp. 103–104; Wells, 1976, p. 476).<sup>14</sup> When Belkaoui (1981, p. 10) reviewed methodologies in accounting theory, he observed that Mattessich (1964a) used a deductive method and that Ijiri (1975a) followed an inductive approach. Related to his idea of accounting as a multiple paradigmatic science, he cited Ijiri (1975a) as an example of an anthropological-inductive paradigm (Belkaoui, 1981, pp. 290, 293) and did not mention Mattessich (1964a). Butterworth and Falk (1986, p. 14) noted that Mattessich (1964a) and Ijiri (1967) are representative examples of the accountability approach.<sup>15</sup> Moreover, Gaffikin said that "...the works of Mattessich, Chambers and Ijiri

have been described as the main postulational attempts [...] Therefore, methodologically, they are similar. Substantively, they are very different” (1988, p. 20).

It is generally acknowledged that the most relevant controversy about these seminal works, including the oeuvres by Edwards and Bell (1961), Moonitz (1961), Sprouse and Moonitz (1962), Mattessich (1964a), Ijiri (1967, 1975a), Chambers (1966a), and Sterling (1970), was about the role of a priori accounting research (Demski, 1973; Dopuch & Revsine, 1973; Nelson, 1973; Gonedes & Dopuch, 1974; Wells, 1976; Danos, 1976; AAA, 1977; Wells, 1977). It seems that a conclusion of this argument was that a priori research was a necessary step toward a continuing improvement of the methods and theories of accounting. Butterworth and Falk (1986, p. 14) noted that Mattessich (1964a) and Ijiri (1967) are representative examples of the accountability approach.<sup>15</sup> In fact, it was precisely this characteristic of strengthening the methodology of accounting research that led in the 1960s to the identification of an elite body of accounting academics, separate from practitioners, creating the conditions for the later emergence of positive accounting theory (Jeanjean & Ramirez, 2009, p. 114). It is also worth mentioning that Mouck (1989, p. 95) found it ironic that the decade when the accounting discipline demonstrated great reverence for the scientific method was a time of great uncertainty in scientific research, which was dominated by the debate over epistemology.

Accounting practice and accounting research are human activities. In this case, the mentioned authors shared a noble purpose (improve accounting research and practice) and a sustained friendship, since the days when Ijiri was an assistant professor at Stanford University (1963–1966) and afterwards when Ijiri returned to CMU (1967–2011) in Pittsburgh and Mattessich was at the University of California at Berkeley (1958–1966). Mattessich later moved to the University of British Columbia (1967–1987) in Vancouver, Canada (Mattessich, 2006, p. 34). Ijiri (1966a) reviewed Mattessich’s classic book, *Accounting and Analytical Methods*, while at Stanford. Later, Ijiri (chairperson) and Mattessich participated in a session of the AAA Committee on Foundations of Accounting Measurement (AAA, 1971) at the UBC in 1968 (Mattessich, 2006, p. 54). In 1984, Ijiri wrote the foreword to the research monograph entitled *Modern Accounting Research* co-authored and edited by Mattessich (1984). Ijiri (1984, p. xv) stated that: “He is a rare accounting scholar indeed, who has published on Philosophy, Logic, and Methodology”. In 1989 and 1993, both authors met at the Annual Meetings of the AAA in Honolulu and San Francisco (Mattessich, 2006, pp. 83, 107). Mattessich (2006, p. iii) acknowledged Ijiri in his dedication of his updated memoirs. Mattessich also recognized Ijiri’s great efforts in foundational accounting research and also emphasized his skills in math: “He is the youngest of the three of us, and has thus had the benefit of the best mathematical training, well reflected in his work” (2006, pp. 43–44, 68). (The other one

that Mattessich referenced is Raymond Chambers.) Ijiri (1996b, p. 435) stated that Mattessich is "...one of the most profound accounting thinkers." When Mattessich (1996a) did an evaluation covering more than 700 accounting publications of the second half of the 20th century, Ijiri (1996a) was one of his commentators.

In connection with the previous topics, some authors are concerned about the most important personalities who have contributed to the development of accounting (Carnegie & Napier, 1996, p. 21). According to Parker (2002, p. 127), Mattessich and Ijiri both meet two characteristics to be studied: "...they have 'made a difference' (Zeff, 1987)" and they should not be forgotten. Thus, this volume will focus on two of the most important accounting thinkers of the 1960s and 1970s and their works. This book aims to identify what led each author to write his work. This research also identifies the problems addressed by each author and the arguments set forth in their works. Both authors addressed problems that have been studied in their own right in the field of economics: Powelson (1955a) as an example on the general theory of accounting and Fisher (1906) in relation to conventional accounting. At this point, the aim is to understand how Mattessich and Ijiri began to be interested in certain accounting issues and how they arrived at similar or different findings.

## WHY A STUDY IN ACCOUNTING THOUGHT?

It is possible to distinguish three areas of accounting knowledge: accounting theory, accounting history, and studies of accounting thought. Accounting theorists are interested in providing explanations for the past and the present of accounting practice following the accepted hypothetico-deductive method (broadly determined by logical positivism).<sup>16</sup> Accounting history focuses principally on past accounting practice. There are different methods for doing this kind of research, ranging from qualitative and quantitative issues, to narrative and interpretative perspectives (Previts, Parker, & Coffman, 1990a, p. 8, 1990b, p. 145). It should be noted that if one wants an understanding of how accounting knowledge has been shaped over time and geographical area, research on accounting thought should be attempted.

Although each area of study has established its own body of research, several institutions and authors overlap these different areas. The AAA (1970, p. 53) linked the study of accounting thought to the history of accounting:

The history of accounting is the study of the evolution of accounting thought, its practices and institutions in response to changes in the environment and social needs. It also considers the effect of this evolution on the environment.

According to this definition, the study of the evolution of ideas in accounting is part of the work of an accounting historian. However, what do the accounting theorists have to say about this matter? Parker (1981) contrasted two approaches:

The Committee on Accounting History accepts with no arguments that accounting theory, its practices and its institutions have *evolved*. Is there reason to say that there has been a revolution rather than evolution? Although accounting historians have not identified revolutions in accounting practice (if the invention of the double entry was a revolution, it was a long process), Wells (1976) has suggested that financial accounting *thought* is experiencing a revolution. (p. 281)

The central issue is the following: why do accounting historians refer to an evolution in accounting theory and practice, whereas an accounting theorist refers to a revolution? According to the accounting duality perspective of momentary and temporal approach (Mattessich, 2013b, pp. 233–234), researchers should endeavor thoroughly to assess the state of the art of accounting literature and its changes.<sup>17</sup> Researchers in accounting thought are interested in tracking, understanding and clarifying *accounting ideas or theories and their variations*.<sup>18</sup> This area of accounting knowledge will be called *studies of accounting thought*.<sup>19</sup>

Research on accounting literature can be useful for both the accounting historian and theorist. Parker and Yamey (1994) suggested that accounting historians should study accounting thought to avoid reusing old ideas:

Accounting theory has been rejected by British accounting historians, but not by British accounting scholars in recent decades. The rejection of the history [of accounting theory] could have contributed to recycling the very ideas that Lee emphasized in the document reprinted here, “The Early Debate on Physical and Financial Capital (1983).” (Parker and Yamey, 1994, p. 9)

The work of an accounting theorist is distinct from that of the analyst of intellectual ideas. The latter is interested in deepening an author’s work, examining its relationship with contemporary theory, assessing it in light of other approaches in the discipline, identifying what were the crucial moments, which launched new questions or created new literature (Richardson & Young, 2011, p. 134). The theorist, in contrast, is interested in rectifying a logical problem in current theory, extending a theory or even creating a new one and arguing against other approaches to similar problems (Walker, 1999).

Chatfield proposed this separation between research on accounting thought and the work of accounting history:

[T]his book is mainly a history of ideas rather than a chronicle of events or a factual summary. (Chatfield, 1977, p. iii)

Despite its pragmatic origins and development, accounting has always been based on a structure of ideas. That is, there are patterns of thought underlying accounting process which afford rational explanations for the particular methods which finally evolve. (Chatfield, 1977, p. 217)

Chatfield's (1977) work is divided into three parts: the first two are dedicated to the history of accounting, and only the last part takes up accounting ideas. It contains five chapters: accounts theories, asset valuation, income measurement, the disclosure of financial information, and accounting postulates and principles. Previts et al. (1990a, p. 3) argued that Chatfield's (1977) work suffers from some restrictions:

Accounting history also encourages the thoughtful scholar to consider the interdisciplinary view of accounting and its environmental context. However, a single piece of historical writing, as with any other product of human endeavor, has limits. Effective use of relevant historical materials requires an author to become aware of these limitations and to adapt to them. For example, a comprehensive study of the history of ideas, such as Chatfield's (1977) *History of Accounting Thought*, cannot exhaustively chronicle events that provide the context of the ideas.

In other words, if Chatfield (1977) was interested in the study of accounting ideas, he should have also considered their context. While accounting theorists recommend that accounting historians consider the history of accounting research, accounting historians suggest that intellectual accounting researchers should use social history to understand the emergence of ideas.

As a result, scholars have proposed different ways to connect academic research in accounting and the study of accounting thought. First, there is a possibility of *integrating* studies of accounting thought into research of accounting history, as indicated by the AAA (1970) and Previts et al. (1990b). It is also feasible to accept that such studies constitute *data* for researchers, especially historians and theorists of accounting (Granof & Zeff, 2008; Parker and Yamey, 1994). For Chatfield (1977), the study of accounting thought can be considered an *independent* field that is distinct from accounting history. In other words, Chatfield would agree that "... the interdependence of the issues must be recognized without confounding the distinctions between them and without ignoring their claims for specific attention" (Sen, 2004, p. 585).

Mattessich (2008) shared this perspective:

Thus, our focus is not on the history of accounting, but on *the history of its research* and the publications underlying it (though, wherever necessary, accounting facts beyond research were taken into consideration). (p. xvii)

This book offers a survey of the efforts that accounting academics, and often enough theoretically inclined practitioners, have invested in accounting publications and research during a period of about 200 years. (p. 1)

Today, given the existence of a vast accounting literature written in the 19th century and more particularly in the 20th century, the development of an area in accounting dedicated to examining this literature is suggested. The beneficiaries will include scholars in the field of accounting, researchers, and policy decision-makers (e.g., historians and theorists of accounting and other social science disciplines, accounting professionals, regulators).

Studying the efforts of previous generations facilitates understanding of contributions to the context of current accounting practice. Whether the current literature is concerned with solving old or new puzzles and presenting old or new explanations, shared knowledge based on strong foundations should enhance research in any field, including accounting.

## METHOD AND ORGANIZATION

In terms of method, this study has three dimensions. It explores whether *Accounting and Analytical Methods* (Mattessich, 1964a) and *Theory of Accounting Measurement* (Ijiri, 1975a) can be analyzed systematically and objectively through a unique framework. On this point, for example, Beattie and Davie (2006) expressed their dissatisfaction that "...many existing studies on the development of accounting thought lack theory or have adopted the Kuhn model of scientific growth" (p. 2). Next, this research reviews several studies of accounting thought to discuss their ideas in the light of the mentioned works. Finally, this analysis considers the influence of mathematics, operations research (OR) and economics in these two classic works of accounting theory or the manner in which this influence was manifested.

This book comprises eight chapters. [Chapter 1](#) is the introduction, and Chapter 2 presents the approaches used to analyze intellectual work. Chapter 3 provides an illustration of studies in accounting thought, and Chapter 4 explores the background of the book *Accounting and Analytical Methods* (hereinafter AAM, by Richard Mattessich, to identify why Mattessich became interested in accounting subjects. In particular, what were the convictions that led him to write this book and to provide the background for the central problem analyzed in AAM? Chapter 5 focuses on the argumentation developed in this work. Chapters 6 and 7 play the similar roles as the two previous chapters, but they refer to the *Theory of*

*Accounting Measurement* (hereinafter TAM) by Yuji Ijiri. Chapter 8 presents the study's conclusions.

## UNDERSTANDING MATTESSICH AND IJIRI

Mattessich's training at the doctoral level was in economics, and his doctoral research was on national accounts. This specialization, together with his professional experience in cost accounting and financial accounting, gave him the necessary background to attempt his own general theory of accounting. However, although his vocation was economics, circumstantial factors led Mattessich to dedicate himself to teaching and research in accounting. In his first published work on accounting, Mattessich (1956) showed an interest in the interdisciplinary discussion between economics and accounting. Over time, his publications shared a common element: the use of mathematical language to construct a theory of accounting. It is likely that certain scholars, especially in the field of OR and economics, influenced Mattessich in this regard. In fact, while Mattessich was influenced by C. West Churchman, Ijiri was by William C. Cooper; both were outstanding researchers in OR.

It should be noted that Mattessich (1964a) set out a series of elements to justify his work: (a) the conviction that rigorous theoretical research would help to overcome the limitations of accounting practice; (b) a recognition of diversity in accounting systems, and the resulting search for their common elements; and (c) an interest in incorporating concepts and methods from economics, management science, and OR into accounting. Thus, there was no single, personal intention for his work; rather, the author's background and convictions combined to give form to his perspective.

Ijiri developed his abilities in mathematics at an early age, and his initial contact with accounting was in his family business. His desire to expand his horizons led him to obtain his master's and doctorate in the US. Due to the influence of his professors at CMU, his academic interest gradually shifted from mathematics and OR to accounting. In 1965, Ijiri published the work that would sustain his research program for much of his academic career. This work strove to theorize the fundamentals of conventional accounting. Ijiri gradually incorporated new dimensions, such as communication and behavior, into this original problem, in articles published between 1965 and 1966, and in *The Foundations of Accounting Measurement* (Ijiri, 1967), which formed the basis of his classic work, TAM (Ijiri, 1975a). Ijiri's use of a descriptive approach recommended by the Graduate School of Industrial

Administration (GSIA) of the Tepper School of Business enabled him to find that the nature of conventional accounting was accountability.

Mattessich and Ijiri shared the idea of accounting practice oriented by theory. However, these authors addressed distinct problems related to the accounting world: While Mattessich (1964a) recognized the diversity of accounting systems and tried to integrate them conceptually, Ijiri (1975a) sought to understand the traditional practice of conventional accounting. These unique efforts demonstrate the liberty of a scholar to elaborate on a problem of interest.

Both started with the assumption that theoretical reflection on accounting required a scientific methodology. Mattessich (1964a) laid the foundations for establishing accounting as an applied discipline. Mattessich dedicated decades of effort to specifying a scientific methodology for accounting, which he called a conditional-normative approach (Mattessich, 1995a, 1995c).<sup>20</sup> Ijiri (1965b, 1967, 1975a) had focused on a descriptive methodology, but in TAM he added normative models for the recognition of economic phenomena such as inflation. While Mattessich maintained his methodological focus with regard to accounting as an applied discipline, Ijiri refined his method by merging descriptive approaches and normative models.

Furthermore, one cannot attribute this interest in methodological refinement solely to Mattessich (1964a, 1972) and Ijiri (1975a); rather, they participated in intellectual debates with their peers, including authors such as Chambers, Devine, and Sterling.

Mattessich updated the notion of accounting so that it would not be restricted only to business accounting. According to Koselleck (2002), reality in accounting had outpaced the existing concept of accounting. Mattessich (1964a) was alert in recognizing this, apparently influenced especially by the Quaker Economist John P. Powelson and his book *Economic Accounting* (1955a). Mattessich's semi-axiomatic proposal for all accounting systems was constructed using first an inductive and then a deductive methodology and showed that all accounting systems are shaped by their objectives: his eight subrogated assumptions imply the need to evaluate how these assumptions should be established according to the desired objectives. This aim of achieving a general theory that would be flexible in accounting system design is maintained in Mattessich (1972) and subsequently refined in his *Critique of Accounting* (1995c).

Ijiri (1975a) concentrated on identifying certain axioms and valuation rules that would characterize conventional accounting based on accountability, using an inductive approach. For Mattessich (1964a) accounting is an applied discipline, while for Ijiri (1975a) conventional accounting is a mechanism that

has been adjusted over the centuries to enable accountability and control of resources at an organizational level.

More generally, we cannot ignore the fact that these authors' preference for expressing theory in mathematical language stemmed from the influence of mathematics, statistics, and OR on economics and management. In economics, the quantitative approach of the inductive process and logical deduction had led this field to focus on pure knowledge and the need to prove the statistical significance of hypotheses and qualitative theorems (McCloskey, 2002).<sup>21</sup> However, present research has revealed that the influence of mathematical language is not the only expression of the relationship between economic theory and accounting. Rather, this relationship has acquired various perspectives. Bryer (2011) refers to the colonialism of economics in accounting theory, which may be true for the work of Fisher. Coase (1938) examined the relationship between accounting and business decisions;<sup>22</sup> Meade and Stone (1944) and Stone (1971, 1975<sup>23</sup>) used the framework of accounting to propose national accounting and demographic systems. Recently, Shubik (2011) suggested the reconciliation of economic theory and accounting.

The question of the identification of the objectives of accounting was a shared question, yet with each author following his own approach.

Mattessich dared to address the accounting of national aggregates and accounting for projections alongside accounting systems for nonmonetary environments (Mattessich, 1964a, p. 139).<sup>24</sup> In this context, his book was a novelty because it raised a new problem for accounting scholars while opening a path for formal research in accounting, discussing description and valuation in a theoretical framework, as well as addressing the evolution of accounting method and predictive accounting information.

In contrast, Ijiri's conceptual approach was on the factors that formed and preserved conventional accounting. Moreover, he was interested in finding ways to improve and extend accounting's logical base (i.e., through his publication describing a conceptual approach to triple entry accounting). The novelty in his work was its association of conventional accounting with accountability, performance assessment, and decision-making. Arguments for historical cost as a criterion for evaluating the performance of administration and determining financial forecasts stand out in his work. His introduction of conflicts of interest into the generation and disclosure of information suggest that his work can be considered an important contribution to the information school (Demski, 2008, pp. 11–12).

A common feature of the works of both authors lies in the conceptual limitations on what accounting describes and projects, that is, about income

and capital. The difficulty of establishing concepts about income and capital has become evident both in economics and in accounting. About both these factors, taking the objectives of measurement into account at all times has been recommended. Also, broader theoretical frameworks that permit making good use of accounting figures are advised.

This research demonstrates that Mattessich took some ideas from Fisher (1906), but he also criticized neoclassical approach in economics. His reflections made in AAM became a source for examination during his academic life. Ijiri created an alternative theory of conventional accounting to couple an information approach to decision usefulness. Consideration of the aim of accountability began to be taken into account in the regulation of financial accounting, as pressure from interest groups recognized the work of Ijiri.

It may be that their works have not been refined and continually studied by academic accountants, not because these oeuvres had not been understood but rather because of the institutional dominance of a conventional approach to the development of accounting theory. Then, institutional and material aspects turn out to be more determinant factors in accounting research (regulation) at the moment of selecting problems, methodologies, authors, or theoretical approaches to follow by researchers (regulators) (Persson & Napier, 2015; Williams, Jenkis, & Ingraham, 2006). This status quo will not change unless the US accounting academy is opened to other fields of accounting knowledge such as research on the accounting literature of outstanding scholars to understand their achievements and limitations.

## NOTES

1. See Koguchi (2015).
2. In fact, given that, in AAM, the basic assumptions of accounting systems have been inferred inductively and the specific hypotheses are inferred from the objective of the accounting system, Mattessich (1980, pp. 167–168) did not accept that AAM was considered a worth that follows an a priori approach.
3. A search for Adam Smith in the Jstor database yielded 410 references in economic article titles, while in the case of Pacioli, 21 academic articles were found in article titles (July 11, 2016). Although this comparison illustrates the problem, it is burdened with difficulties because the works of Pacioli are not restricted to accounting and *Particularis de Computis and Scripturis* Pacioli (1494/1914) is not considered to be an accounting theory work (Sy & Tinker, 2006, p. 106).
4. For example, one article in Jstor database was found about Henry R. Hatfield (Canning, 1929b). This database contains no title references to Théodore Limperg

and Gino Zappa. In Accounting & Tax Database (Proquest), three articles about Henry R. Hatfield (Lee, 2002; Mumford, 1980; Parker, 2002), two about Théodore Limperg (Camfferman, 1994; Clarke & Dean, 1992) and another about Gino Zappa (Dagnino & Quattrone, 2006) were found (July 11, 2016).

5. There are at least six journals dedicated to publishing articles about the history of economic thought, including the Adam Smith Review, although there is not a single similar journal focused on accounting, business, or management.

6. The American Institute of Certified Public Accountants (AICPA) and the American Accounting Association (AAA) awarded Richard Mattessich a gold medal in 1972 for his significant contribution to accounting literature, and especially for his article “Methodological Preconditions and Problems of a General Theory of Accounting.” Yuji Ijiri was honored four times with the award for outstanding contributions to accounting literature for two articles and two books: In 1966, his article written with R. K. Jaedicke, “Reliability and Objectivity of Accounting Measurement;” in 1971, his article written with Robert Kaplan, “A Model for Integrating Sampling Objectives in Auditing;” in 1967 for his book, “The Foundation of Accounting Measurement;” and in 1975, his classic work, *Theory of Accounting Measurement*.

7. Al-Hogail and Previts (2001), Dean and Clarke (2010a), Dean, Wolnizer, and Clarke (2006), Demski (1976), Iselin (1968), Mattessich (1967), McKeown (1971), Vickrey (1975), and Wells, Jensen, and Chambers (1992). The first four articles were published in the *AHJ* and the others in *TAR*.

8. Of full-text articles in business and economics discipline journals, 469 and 839 results were found in *JSTOR* for Mattessich and Ijiri, respectively. A search in Business Source Complete found 283 full-text journal articles for Mattessich and 1,132 for Ijiri. The Accounting and Tax Database (Proquest) showed 43 results for Mattessich and 63 for Ijiri when filtered by articles in scientific journals of all languages available (July 11, 2016). These results seem more accurate because to paraphrase Mattessich (2006, p. 93), there is only one Mattessich and only one Ijiri in accounting.

9. On this matter, Mattessich (2006, p. 49), considered that “...my efforts were less popular than the publications of Ijiri, Chambers, and Sterling, or those of the next generation of leading accounting academics. But popularity has never been on my mind.”

10. In the words of Lakatos (1980/1983), a research program that would present these characteristics might be called regressive. Still, Lakatos also accepted that there is no dishonesty when a scientist decides to turn research into a progressive program.

11. The Argentinian scholar García Casella (2004, p. 737) maintained that Mattessich’s (1964a) work could be recognized as a classic in accounting literature, as are the works of Adam Smith in economics and Taylor and Fayol in administration.

12. The Japanese translation of AAM was mentioned by Mattessich (2006, pp. vi, 139).

13. There exist German versions of Chambers (1966/1975) and Ijiri (1967/1978). (Cited by Mattessich, 2006, p. 44). There is a Japanese, French, and Spanish version of the Ijiri’s doctoral dissertation (Cooper, 1996, p. 307).

14. Gaffikin (1996, p. 127) mentioned that in the case of Mattessich, “[t]his is quite understandable as he has always been concerned, with establishing a formalized, foundational methodology for accounting.” Nelson (1973) mentioned other authors, including Ijiri (1967, 1975a), but not Mattessich (1964a).

15. Butterworth and Falk (1986, p. 13) pointed out that in the last 60 years, the valuation paradigm and accountability (*stewardship*) paradigm have been in competition.

16. This scientific methodology is based on the idea that a statement is considered scientific if it can be verified by means of experience or if its truth value can be established analytically. In this last perspective, it is necessary that the premises or axioms be carefully set out and that the conclusion is deduced from the axioms.

17. Beattie and Davie (2006, pp. 1–2, 21) summarized four benefits of historical research on accounting knowledge. First, when it identifies the causes and consequences of change, it can understand the relationship between research and accounting practice. Second, it clarifies the current structure of the discipline and, therefore, allows for a related debate on the links between different theoretical approaches. Third, it serves as a pedagogical instrument for teaching accounting theory, and, fourth, it allows scholars outside the field of accounting to explore the development of the discipline, related disciplines (economics, psychology, and sociology) and the accountancy profession.

18. Just as Sáenz Rovner (1995) suggested that a business historian should be a social scientist trained in the discipline of history, one could ask if this criterion would be valid for an accounting historian.

19. This expression is preferred to a history of accounting ideas because the latter focuses only on *ideas*. Although there is no general agreement on the study period for a researcher of accounting thought, the Vatter (1947, Note 3 of [Chapter 1](#)) criterion suggests that this period is the last 200 years.

20. For further information, see Mattessich (1996a, p. 42, 1996b, pp. 116–117).

21. See, for example, Blaug (2003), Franco de los Ríos (2005), and Ingraio and Israel (1990). The *axiomatic turn* in economics was led by Karl Menger and Karl Schlesinger and conducted by the statistician and mathematician Abraham Wald (Morgenstern, 1951).

22. Lately, Coase (1990) suggested a relationship between the size of firms and the role of accounting systems. Braun (2016) considers that, while Coase criticized neo-classical economic theory, he approved its application in accounting.

23. It refers to United Nations (1975).

24. Ijiri (1966b, p. 150) followed this idea by proposing that the accounting unit of measure does not have to be monetary in accounting based on historical cost.