

# *How do Heterodox Economists connect on Social Networks? A Bibliometrical Study of Co-authorship in Heterodox Journals*

Maríndia Brites  
Midwestern Paraná State University

Felipe Almeida  
Federal University of Paraná

Danielle Guizzo  
University of Bristol, UK

## **Área 1 - História do Pensamento Econômico e Metodologia**

**Resumo:** A economia heterodoxa é amplamente definida pela interação de seus membros, que pode ser analisada através das redes sociais. Este estudo baseia-se em um tipo de interação entre os economistas heterodoxos, especificamente a coautoria em artigos publicados por periódicos heterodoxos. A coautoria permite analisar a colaboração entre membros da comunidade heterodoxa. Uma identidade social pode ser apontada por meio de coautoria, pois os economistas tendem a interagir diretamente com parceiros que possuem ideias heterodoxas semelhantes. Para a seleção dos periódicos heterodoxos, contamos com dois *rankings*: Lee e Cronin (2010) e Cronin (2020). Os mesmos quatro periódicos fazem parte do top 5 dos *rankings* de Lee e Cronin (2010) e Cronin (2020): *Cambridge Journal of Economics* (CJE), *Journal of Economic Issues* (JEI), *Journal of Post Keynesian Economics* (JPKE) e *Review of Radical Political Economics* (RRPE). Assim, aplicamos uma análise bibliométrica a um conjunto de artigos publicados por esses periódicos para gerar dados quantitativos sobre artigos em coautoria. O artigo constrói mapas de *cluster* individuais para cada periódico selecionado, destacando a participação e importância dos principais autores e seus coautores. Além disso, oferece um tema para cada *cluster* e compara os resultados dos mapas de *cluster* com a posição editorial dos coautores nos periódicos.

**Palavras-chave:** Economia Heterodoxa, Revistas Heterodoxas, *Cambridge Journal of Economics*, *Journal of Economic Issues*, *Journal of Post Keynesian Economics*, *Review of Radical Political Economics*

**Abstract:** Heterodox economics is largely defined by the interaction of its members, which can be analysed through social networks. This study relies on the interaction among heterodox economists in their social networks, the co-authorship in papers published by heterodox journals. Co-authorship allows analyzing collaboration among members of the heterodox community. A social identity can be pointed out through co-authorship as economists tend to interact directly with partners who holds with similar heterodox ideas. In order to select the heterodox journal to study co-authored papers, we relied two rankings, Lee and Cronin (2010) and Cronin (2020). The same four journals are part of top 5 of both Lee and Cronin's (2010) and Cronin's (2020): *Cambridge Journal of Economics* (CJE), *Journal of Economic Issues* (JEI), *Journal of Post Keynesian Economics* (JPKE) and *Review of Radical Political Economics* (RRPE). We hence applied a bibliometric analysis to a set of papers published by those journals in order to generate quantitatively data about co-authored papers. The article builds individual cluster maps for each selected journal, highlighting the participation and importance of key authors and their co-authors. Further, it offers a theme for each cluster and compare the results of the cluster maps with the co-authors editorial position in the journals.

**Keywords:** Heterodox Economics, Heterodox Journals, *Cambridge Journal of Economics*, *Journal of Economic Issues*, *Journal of Post Keynesian Economics*, *Review of Radical Political Economics*

**JEL Classification Codes:** B50

## 1. Introduction

The evolution of economics ideas throughout the 20<sup>th</sup> century displays a sociological aspect. Economics became divided into a conventional mainstream and a dissident heterodox economics. Despite the importance of that division, there is no clear or a univocal definition of the meaning of heterodox economics (Wrenn 2007). The main reason is heterodoxy in economics is an intellectual movement that congregates several approaches – such as Post Keynesianism, Original Institutionalism, and Marxism. Hence, there are some perspectives to identify or characterize heterodox economics: (1) non-mainstream economics; (2) unifying features; (3) experts' definition; (4) self-identification; and (5) sociological approach. Identification or characterization (1) is known as a “negative definition” of heterodoxy as it defines heterodox economics by what it is not (see Dequech 2007). Identification or characterization (2) relies on ontological generalization of heterodox approaches, the contributions of Tony Lawson and John Davis are great illustrations. For Lawson (2004 and 2006), heterodox economics is an open system that deals with processes. Davis (2008a) addresses that heterodoxy is characterized by an analytical tripod composed by “institution”, “history” and “social structure”. Wrenn (2007) and Mearman (2011) are illustrations of identification or characterization (3). Wrenn (2007) analyzed the perceptions of historians of economic thought, through interviews, to introduce the nature and place of heterodoxy in economics. Mearman (2011) points out the nature of the heterodox economics through empirical analysis, data collected by questionnaire, from a sample of the members of the *Association for Heterodox Economic* (AHE)<sup>1</sup>. According to Backhouse (2000 and 2004), one way to characterize heterodox economics is through economists' self-identification. The existence of heterodoxy depends on economists who self-identify as heterodox, according to identification (4). This paper relies on identification or characterization (5).

Identification or characterization (5) is not entirely free of a “negative definition”, as a sociological identification of heterodoxy can take place as an outcome of the sociological placement of the mainstream. Sociologically analyzing, a mainstream would be an approach that congregates the large number of followers. The mainstream would be characterized by ideas that holds the largest influence and prestige in the profession (Colander *et al.* 2004 and Dequech 2007). According to Dequech (2007), mainstream consists of ideas that a profession elite considers acceptable that dominate the main associations, conferences, and journals. Consequently, economists who identify themselves with heterodoxy build their own networks, associations, congresses, and publish their papers in specific journals (Backhouse 2000 and 2004).

Despite the numerous definitions found in the literature for heterodoxy and what it means to be heterodox, the authors described above emphasize that heterodox economists organize themselves into scientific communities and social networks with the aim of developing heterodox knowledge. The social network is defined as “(...) a regular set of contacts or similar social connections among individuals or groups” (Swedberg & Granovetter, 1992, p. 9). It is one of many sets of content-specific social relations – communication, power, affect, or exchange relations – that binds individuals within a larger social structure. The theory of social networks, developed by Granovetter (1983), is interpreted in this paper as a social structure that shows the heterodox as ‘points’ and the relationship between them as connecting “lines”. This structure can be analyzed through some arbitrary heterodox - the Ego - inserted in the networks. The ego will have a set of closer heterodox economists, linked by “weak ties”, and a set of less close proximity, few of whom are known, linked by “strong ties”. A third concept developed in social network theory, in addition to strong and weak ties, is the “bridge”. This element constitutes a link that provides the only path between two heterodox or groups of heterodox economists. The links between the ego and its knowledge become not just a trivial link of knowledge, but a bridge between the two groups of closely heterodox ones (Granovetter, 1973; 1983). Lee (2009a) highlights that organizing conferences and social networks as important as introducing new approaches to improve and establish the heterodoxy. Lee (2012) emphasizes that the formation of social networks is a survival strategy for

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<sup>1</sup> Wrenn (2007) relies on eight interviews with professors of the history of economic thought in 2003, during History of Economics Society (HES) Annual Conference. Mearman (2011) is based on questionnaires that were distributed at the AHE Conference in Cambridge, UK, in July 2008 and were returned to the author at the conference itself, by mail or e-mail. From approximately 250 AHE members, 43 questionnaires were returned (Mearman 2011).

heterodox economists in order not to be eliminated from economics by the mainstream. Kolbe (2019) reinforces Lee's (2012) perspective by analyzing how heterodox economics survives within the UK economics. For Kolbe (2019) that survival occurs through stable structural conditions – associations, conferences, journals, and under graduation degree programs – and collective action.

Our paper analyzes heterodox social networks through specific kind of interaction: co-authorship in papers published by heterodox journals. Co-authorship allows analyzing collaboration between two or more authors and provides information on direct interactions between economists within the heterodox community. Additionally, a social identity can be pointed out through co-authorship by the assumption that economists who interact directly through co-authorship tend to look for partners with similar heterodox thought. Hence, this paper deals with a specific survival strategy and dissemination of ideas: heterodox journals. The main goal of our paper is to understand how heterodox economists organize their communities through co-authorship in papers published by heterodox scientific journals. In order to achieve such goal our paper relies on a bibliometric approach.

This paper applies bibliometric analysis to a set of papers published by heterodox journals in order to generate quantitative and qualitative data about co-authored papers. Such data allows the analysis of structures and social interactions among authors. The study of heterodox journals provides evidence about the social dynamics of the group of authors, the existence or development of a collective identity as heterodox economists and the existence of groups. Those findings, bibliometrically, emerge from set of clusters (Mählck and Persson 2000). Selecting the heterodox journals to apply the bibliometric analysis is not trivial. Hence, we choose to work with rankings of heterodox journals. We relied on two rankings, Lee and Cronin (2010) and Cronin (2020) – the latter is an update of the former.<sup>2</sup> The same four journals are part of top 5 of both Lee and Cronin's (2010) and Cronin's (2020) rankings: *Cambridge Journal of Economics* (CJE), *Journal of Economic Issues* (JEI), *Journal of Post Keynesian Economics* (JPKE) and *Review of Radical Political Economics* (RRPE). Those are the journals we selected to study. They can reflected different survival strategy unified into the heterodox economics allowing the analyzes of (1) an organizational structure for strategic survival action; (2) dissemination of heterodox ideas and (3) the political position of the editorial committee of the journal, guiding and influencing issues approached by the journals.

Seven more sections complete this paper. Next section introduces how the sample of co-authored papers were constructed. The methodology we applied in the construction of the samples is also presented. Then, the clusters map of co-authorship of CJE, JEI, JPKE, and RRPE are introduced and analyzed in different items – sections three, four, five, and six. Section seven cross the co-authorship data with the editorial structure of heterodox journals. For studying if there is a connection between both survival strategies of the heterodox community. Finally, the last section are the final comments of this paper.

## **2. Sample and Methodology**

According to Lee (2009b), heterodox economists are organized in interconnected social networks. The heterodox economists are interconnected as they depend on each other for the production of this heterodox knowledge. It takes place by production of papers and books, organization of conferences, and other forms of interaction of their research field. In the backstage, the feeling of belonging to a community is present – however, it can be an unconscious feeling. Hence, we can assume that heterodox social networks' main goal would be the production of a heterodox knowledge that maintain the community together. This paper studies the production of heterodox knowledge by journals. A first methodological challenge was how to select the heterodox journals to be studied. We selected through Lee & Cronin's (2010) ranking of heterodox economics journal and its update Cronin (2020). In both Lee & Cronin's (2010) and Cronin (2020), the four better-ranked journals are the same: *Cambridge Journal of*

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<sup>2</sup> The building of Lee and Cronin's (2010) ranking followed three steps. The first step was to generation of an encompassing citation-based ranking of the journals. It would combine metrics and an a subjective factor related to the judgment of heterodox community. In this first stage, the cross-citation among heterodox journals are taken into account (for the period from 2002 to 2008). The next step was a peer review ranking of heterodox journals, in which 405 economists from the Association for Heterodox Economics, through questionnaires, judged the qualitative aspects of the journals. Finally, the results from previously steps were combined to culminate in a quality raking for heterodox journals. The update undertaken by Cronin (2020) is a replication of the peer review, the second step in the original study.

*Economics* (CJE), *Journal of Economic Issues* (JEI), *Journal of Post Keynesian Economics* (JPKE) and *Review of Radical Political Economics* (RRPE). As those four journal were better-ranked in a ranking from 2010 and another from 2020, those are the journal we study in this paper<sup>3</sup>.

The data from the four journals was extracted from the Elsevier Scopus and Web of Science database. They were merged and compiled into a single database. The time span comprises the entire historical period of the journals, resulting in 7977 articles, 1967 published by CJE, 3006 by JEI, 1493 by JPKE, and 1511 by RRPE. The bibliometrics outputs were generated the R statistics program plus the bibliometrix package. The study of heterodox journals can rely on several kind of metrics: themes, keywords, JEL classification codes, citation, and co-citation, for instance. We decided to work with co-authorship. As co-authorship networks show who the heterodox economist that participate in the network are and how they are connected. For Mählck and Persson (2000), co-authorship is the most reliable bibliometric indicator of social interaction in which there is personal contact among co-authors. Themes, keywords, JEL classification codes, citation, and co-citation can reveal interactions. However, those interactions do not need to imply in a network. For instance, several heterodox economists can share themes or theoretical background – expressed in co-citation – and they do not mean that those heterodox economists interacts directly. By analyzing co-authorship, we deal with direct interaction - the “strong ties”. Hence, when we point out that we are analyzing social networks, we are relying on those networks that its members consciously build.

Given we are dealing with a co-authoring analyzes, after extracting the data and building a single database, were manually standardized our data set. As authors can be named in different ways. For instance, we manually programmed the software to read (1) Keynes, J. M., (2) Keynes, J. Maynard, and (3) Keynes, John Maynard as one and the same<sup>4</sup>. There was another manual task: removing the papers that somehow were duplicate in our sample. The networks were built through the software “collaboration analysis” of the fifty authors who produced the most in co-authorship. As co-authorship is a co-occurrence analysis, it requires the normalization of data, it is the correction of data regarding differences in the total number of occurrences. This normalization requires the application of similarity measures. There is no consensus in the literature about which similarity measure is more appropriate to normalize the data. Therefore, we followed Eck and Waltman (2009), in the application of the association index, also known as proximity or affinity index.<sup>5</sup>

Finally, our co-authorship cluster maps of heterodox journals were concluded. Each circle represents an author - a point in social network. Authors are linked when they produced a co-authored paper. The larger circle, more papers published in co-authorship – by the author naming the circle – are part of the cluster. Therefore, by analyzing the clusters, we can identify groups of authors and theoretical-methodological approaches that can make the identification of a social identity of the group possible. The analyses can also point out most influential heterodox economists of a group. The scientific co-authorships network takes into account the scientific collaboration of authors from the ones who most produced in co-authorship. Therefore, productive authors, but who did not co-authored, are not part of the cluster. It is also possible to study most influential groups in a cluster. Next sessions introduces our analysis of co-authorship cluster maps for CJE, JEI, JPKE, and RRPE.

### **3. Cambridge Journal of Economics (CJE)**

Among 1967 paper published by the CJE, 650 are co-authored – 33.05%. CJE’s cluster map of co-authorship is on Figure 1. It is compatible with the themes and theoretical lines found in the current scope of the CJE. CJE is based on the traditions of Marx, Keynes, and Keynesians, accepts contributions from

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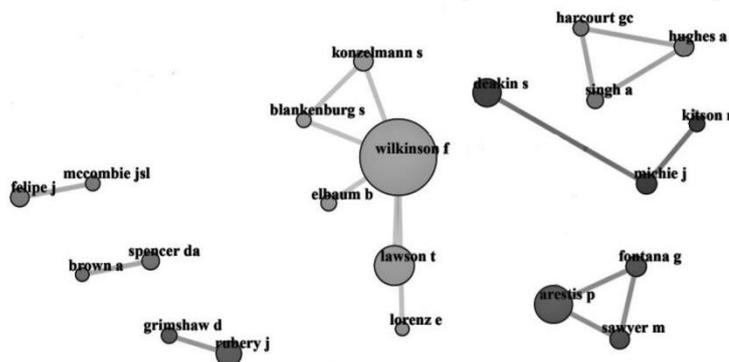
<sup>3</sup> We decided to work with the rankings’ top four by consistence of the best-ranked journals. For instance, if we consider the fifth and sixth position, they were *Economy and Society* and *Development Change* for Lee & Cronin (2010) and the *European Journal of the History of Economic Thought* and *Review of Political Economy* for Cronin (2020).

<sup>4</sup> Clearly, the mention to Keynes is merely illustrative.

<sup>5</sup> There are two types of similarity measures: (i) set-theoretic, which are interpreted as measures of relative overlap of sets; and (ii) probabilistic, which are measures of the deviation of the observed co-occurrence frequencies from the expected co-occurrence frequencies. The inclusion index, equivalence index, Jaccard and Salton are theoretical, while the association index is probabilistic. Eck & Waltman (2009), based on theoretical and empirical results, indicate that the co-occurrence data are better normalized through probabilistic measures.

many heterodox traditions and is not related to a specific association or school of economic thought. CJE's cluster map of co-authorship shows three co-authorship networks composed by two authors, three networks composed by three authors and a single network, the largest, composed by six authors. The six authors that compose the largest network are Bernard Elbaum, Edward Lorenz, Stephanie Blankenburg, Sue Konzelmann, Tony Lawson and the late Frank Wilkinson. The late Frank Wilkinson (1934-2021) was an emeritus professor at the University of Cambridge and professor at Birkbeck College, University of London. He was one of the editors, one of the patrons of the CJE, and the most co-authored author of the CJE. Konzelmann, Lawson and Blankenburg are also editors of the CJE. This first cluster was built on eight articles.

**FIGURE 1 – CJE's Clusters Map of Co-Authorship**



In this cluster, the theme addressed by the papers are: (1) issues related to labor, wages and corporations – Elbaum, Lazonick, Wilkinson, and Zeitlin (1979), Elbaum and Wilkinson (1979), Lawson, Tarling and Wilkinson (1982), Lorenz and Wilkinson (2003) and Blankenburg, Plesch, and Wilkinson (2010). (2) Macroeconomic issues in relation to the 2008 crisis – Konzelmann, Wilkinson, Fovargue-Davies, and Sankey (2010), and Blankenburg, King, Konzelmann, and Wilkinson (2013). The former addresses criticism to corporations and, therefore, it could also be associated with (1). There is a paper that does not fit (1) or (2), hence there is a third category composed by just one paper. (3) a study on Piero Sraffa's (1898-1983) writings – Blankenburg, Arena, and Wilkinson (2012). Frank Wilkinson is this network's "bridge" author, coauthoring all papers. The strength of Wilkinson as "bridge" author can be seen in the grouping of the cluster – (1), (2), and (3) – reflecting his contributions, the study of institutions and organizations and their effects on economic performance, mainly industrial performance and labor relations<sup>6</sup>.

The research interests of the other authors of the cluster are compatible with the two groups of themes of CJE's larger cluster: (1) issues related to labor, wages and corporations and (2) macroeconomic issues in relation to the 2008 crisis. Tony Lawson and Sue Konzelman are the only members of the cluster that associate their writings with the labels "heterodoxy" or "interdisciplinary". Despite that fact, there is a common term among the co-authored papers of this cluster, encompassing the study on Sraffa: the term "alternative view". The authors criticize the arguments formulated by "much of the literature around". Sometimes those criticisms are addressed to neoclassical economics, but they are mainly addressed to mainstream. The key argument is the mainstream should be replaced by an alternative approach, relying on historical perspectives. Original Institutionalism and the Critical Realism are pointed

<sup>6</sup> The other authors of the cluster are: (1) Sue Konzelmann is a professor at the University of London and her research considers the interrelationship between historical, economic, social and political perspectives for the study of austerity policies and liberal capitalism and its relation to the 2008 financial crisis. (2) Tony Lawson is professor of economics and philosophy at the University of Cambridge. Lawson's writings relies on critical realism and social ontology. Additionally, he is part of the *Alternative Approaches Research Group*, a group committed to the improvement of economics pluralism, history of economic thought, and heterodox perspectives. (3) Bernard Elbaum is an emeritus professor of economics at the University of California, Santa Cruz, his research interested is based on financial corporations and US economic history. (4) Edward Lorenz is a professor of economics at the University of Côte d'Azur (France) and his research is focused on innovation, organizational learning and economic development. (5) Stephanie Blankenburg is a professor at the School of African and Oriental Studies (SOAS) at the University of London, her research relies on progressive economic policies for the current global economy. The data about the author were obtained by their personal page on the universities websites.

out as suggestions of the path that the alternative approaches can take. As far as we can understand, CJE's major cluster follow a "non-mainstream" approach. This CJE's larger cluster is explicitly guided by "alternative approaches" to neoclassicism and/or mainstream. Therefore, the papers that support that cluster can be classified as heterodoxy according to the definition of heterodox economics introduced by Dequech (2007), Colander *et al.* (2004), Lawson (2004 and 2006) and Backhouse (2000 and 2004). They heterodoxy in negative and sociological terms through what it is not, as opposed to mainstream or orthodoxy.

Another CJE's cluster is composed by Philip Arestis, Giuseppe Fontana and Malcolm Sawyer. This cluster relies on 7 co-authored papers: Arestis and Sawyer (1997; 2005; 2006; 2008), Arestis, Charles and Fontana (2014) and Fontana and Sawyer (2016; 2017). The studies by Arestis and Sawyer (1997; 2005; 2006; 2008) deal with proposals for monetary policy. This cluster is the most cohesive social network of CJE. As it has only three authors and a greater number of papers suggesting a great research interaction among the authors. Arestis, Charles and Fontana (2014) analyzes the effects of financialization on the distribution of income in the USA among different social groups, based on gender and race, generating stratification in the North American labor market. Fontana and Sawyer (2016 and 2017) critically analyzes the characteristics and political implications of the full reserve bank (FRB) proposals. Hence, this cluster can be identified as a "monetary macroeconomists" cluster. Additionally, aside from Arestis, Charles and Fontana (2014), the other papers of the cluster are admittedly based on Post Keynesianism<sup>7</sup>. The authors of this cluster can be classified as Post Keynesians. Philip Arestis is a professor of economics at the University of Cambridge and Giuseppe Fontana and Malcolm Sawyer are professors at the University of Leeds.

There are two papers clusters connecting more than two co-authors. Deakin and Michie (1997) and Kitson, Michie, and Sutherland (1997) compose a three-node cluster is represented by two papers. The authors of this cluster can be identified as "theoreticians of labor economics". The papers address issues related to the social contract, inter-firm cooperation, job creation and the labor market. The social contract explored by Deakin and Michie (1997) relies on Oliver Williamson's (1932-2020) transaction costs approach. Jonathan Michie, current editor of the CJE, is a professor of innovation and knowledge exchange at the University of Oxford. Simon Deakin and Michael Kitson are director and assistant director, respectively, of the Center for Business Research (CBR) at the University of Cambridge. Their research is based on innovation and economics and law with focus on labor economics – the theme of the cluster.

There is another cluster composed by three nodes regarding two paper. They are Harcourt and Singh (1991) and Harcourt, Hughes, and Singh (1993). Sukhamoy Chakravarty's (1934-1990) and Austin Robinson's (1987-1993) obituaries. Sukhamoy Chakravarty was an Indian economist who had affinities with classical theories and the Cambridge school – especially with Sraffa, Joan Robinson, and Nicholas Kaldor (Harcourt & Singh 1991). Austin Robinson was an openly Keynesian professor of economics, between 1950 and 1965, at Cambridge and was editor of the *Economic Journal* for 36 years (Harcourt, Hughes, and Singh 1993). The social identity of this cluster is not theoretical or thematic. This cluster relies on Cambridge professors paying respect to their late colleagues.

The other social networks formed are double nodes connecting only two co-authors. One of them is composed by Grimshaw & Rubery (1998; 2005; 2012), Rubery & Grimshaw (2015) and Ugarte, Grimshaw & Rubery (2015). The theme explored by the papers that compose the cluster is labor relationships<sup>8</sup>. The theme of this cluster is similar to that composed by Deakin, Michie, and Kitson. The difference is the latter is based on papers that deal with contracts and competition, guided by the New Institutional Economics (NEI) approach, while the former present critical studies on conventional approaches that neglect labor relations and neoliberalism and address issues such as gender pay inequality. Another cluster of double nodes connecting only two co-authors relies on two papers, Felipe and

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<sup>7</sup> We are not affirming that Arestis, Charles and Fontana (2014) does not rely on Post Keynesianism, our point is it makes no clear reference to the approach as the other papers of the cluster.

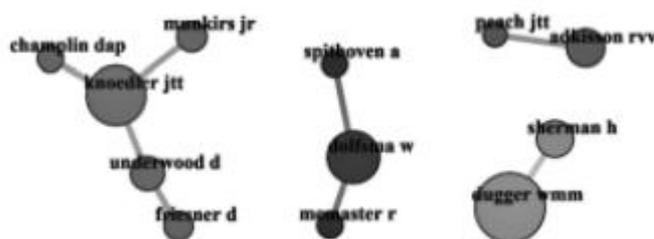
<sup>8</sup> The research areas of Jill Rubery and Damian Grimshaw – both professors at University of Manchester – are directly related to the papers that compose the cluster: employment, minimum wage policies, new forms of labor relations and flexibility, outsourcing, negotiations collective bargaining and labor policies.

McCombie (2003) and Felipe, Hasan, and McCombie (2008). This cluster can be identified as “critics of the neoclassical empirical methodology”. Felipe and McCombie (2003) explains the reason that the notion of growth in total factor productivity in East Asian economies is problematic. The study is a criticism of neoclassical methodologies for calculating the growth of total factor productivity, which cannot be interpreted as an estimation of the rate of technical progress. Felipe, Hasan, and McCombie (2008) addresses the endogeneity bias when production functions are estimated based on data of monetary values<sup>9</sup>. By being characterized as “critics of the neoclassical empirical methodology”, this cluster is also in line with the negative definition of heterodoxy –according to Dequech (2007), Colander *et al.* (2004), Lawson (2004 and 2006). The CJE’s co-authorship last cluster, relying in double nodes connecting only two co-authors, is made up of three articles, Brown, Slater, and Spencer (2002), Brown, Charlwood, Forde, and Spencer (2007) and Brown and Spencer (2012). The members of this cluster can be classified as “Marxists”. Brown, Slater, and Spencer (2002), despite the criticism of the method of abstraction of critical realism based on the method of Karl Marx (1818-1883), it suggests an improvement to the method and not its total exclusion. Brown, Charlwood, Forde, and Spencer (2007) and Brown and Spencer (2012) points out suggestions of studies based on “alternative approaches” and / or political economy, both relying on the classics and specifically on Marx<sup>10</sup>.

#### 4. *Journal of Economic Issues (JEI)*

Regarding the JEI, 690 papers published are co-authored – it means 22.95% of the papers published by the journal. JEI’s cluster map of co-authorship is shown in Figure 2, is composed by a five authors cluster, another triple authors cluster and two cluster composed by two authors.

**FIGURE 2 – JEI’s Clusters Map of Co-Authorship**



The five authors cluster is composed by John R. Munkirs, Janet T. Knoedler, Dell P. Champlin, Daniel A. Underwood and Dan Friesner. This cluster is associated with 20 co-authored papers. It means that the five authors cluster is very consistent implying in an intense network. Among the co-authors, Knoedler, a professor at Bucknell University, is highlighted for co-authoring sixteen papers. Knoedler is the “bridge” of the cluster as she is connected with Munkirs, Champlin, and Underwood. The theme of this cluster is original institutionalism. However, the connection among authors in the cluster suggests association with different segments of original institutional economics. The strong connection is between Knoedler and Champlin, it is based on 11 papers, Champlin and Knoedler (1999; 2001; 2002a; 2002b; 2003; 2004a; 2004b; 2005; 2006; 2008a; 2008b). The connection between Knoedler and Munkirs – based on three papers, Munkirs and Knoedler (1987a; 1987b; 1988) – follows the same perspective as Knoedler and Champlin. Knoedler-Champlin and Knoedler-Munkirs are associated with a segment of original institutionalism called Cactus Branch<sup>11</sup>. As Champlin and Knoedler’s and Munkirs and Knoedler’s follow

<sup>9</sup> Jesus Felipe is an economist at the Asian Development Bank in the Philippines and John S. L. McCombie is a professor at the University of Cambridge. Both authors are interested in the disparities in the rates of economic growth and the urban and regional economy, in addition to being critical of the function of neoclassical production.

<sup>10</sup> The Marxist approach is one of the theoretical currents accepted by the CJE. Andrew Brown and David Spencer are economics professors at Leeds University Business School, researching political economy, labor theory, dialectics, Critical Realism and interdisciplinary in economics. Those are research objects consistent with the cluster’s theoretical-methodological orientation.

<sup>11</sup> The “Cactus Branch” is an institutionalist group originally composed by Ayres and Ayresians. Ayres played the role as the charismatic leader of the group. Its members had close and continuous contact with each other. The geographical closeness of the individuals in the “cactus branch” — all located at universities in the Southwest — certainly facilitated their close

the ceremonial-instrumental dichotomy that was introduced by Veblen and later developed by Clarence Ayres and Ayresians. Champlin and Knoedler's and Munkirs and Knoedler's papers stand for that social provision and interest public of economic related subjects – such as media, corporations, public policies, and labor and educational issues – are being replaced by private interest and searching for pecuniary gains<sup>12</sup>.

Other connections in this cluster are Underwood's. The connection Knoedler-Underwood, relies on two papers Knoedler and Underwood (2003 and 2004). Those papers are focused on the study of original institutionalism as a way of improving the training in economics, hence the association of Knoedler-Underwood link with the theme of the cluster. The Underwood-Friesner relies on four papers, Underwood, Axelsen & Friesner (2010a; 2010b), Underwood, Friesner, and Cross (2014), and Underwood, Hackney, and Friesner (2015). Underwood, Axelsen & Friesner (2010a; 2010b) are studies on payment inequalities by gender. Despite not highlighting a clear theoretical approach, Underwood, Axelsen & Friesner (2010a; 2010b) address “cultural filters” in how choice for jobs take place, it is analyzed how social structures cause socioeconomically differences for purely institutional reasons and under the same conditions this inequality is maintained. Underwood, Friesner, and Cross (2014) and Underwood, Hackney, and Friesner (2015) associate environmental issues with economic and social well-being. Those papers are not explicitly associated with original institutionalism, but emphasizes that environmental policy makers must take into account the institutional and cultural factors and institutional legitimacy of each region, with the aim of improving the social provisioning of communities. Summing up, Underwood and Friesner deals with institutionalism, in their joint studies, but they are clearly stress the original institutionalism<sup>13</sup>.

The triple authors cluster is composed by Wilfred Dolfsma, Robert McMaster, and Antoon Spithoven, the former is the “bridge” author, who is co-author of all papers in this cluster, connecting the other authors. The connections among the authors were build through five papers, Dolfsma and McMaster (2007 and 2011), Dolfsma and Spithoven (2008), and Dolfsma, Finch and McMaster (2005 and 2011). The authors of the triple network can be socially identified as “socioeconomists”. Socioeconomists argue that economic values cannot be separated from social values. From the point of view of Socioeconomics, economic relations are embedded in broader social relations in the context of markets (Davis and Dolfsma 2008). Another, feature of the triple authors cluster is the three authors are Europeans. Dolfsma and Spithoven are Dutch and McMaster is Scottish. Dolfsma is a professor of business management and Organization at Wageningen University & Research, Spithoven is a professor at the Utrecht School of Economics and Robert McMaster is a professor at University of Glasgow. Dolfsma and McMaster (2011) and Dolfsma, Finch and McMaster (2005) study the relationship between the market and society in the provision of public services. Dolfsma and McMaster (2007) and Dolfsma and Spithoven (2008), respectively, emphasize the importance of the addition of social factors in financial analyzes (bankruptcy) and defend the institution of language in commerce. In four of the five published articles, the authors

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interaction. Furthermore, during the first half of the 20<sup>th</sup> century the Southwestern Social Science Association and its journal, the *Southwestern Social Science Quarterly*, provided a forum for exchanging and disseminating their ideas. After the foundation of the Association for Evolutionary Economics (AFEE), in 1965, and its JEI, they became the Cactus Branchers' forum (Cavalieri and Almeida 2017). In 1979, the Association for Institutional Thought (AFIT) emerged as another niche of interaction (Almeida, 2016). Sturgeon (1981) includes individuals from the following institutions under the “Cactus Branch”: the University of New Mexico, North Texas State University, the University of Missouri – Kansas City, the University of Denver, and the University of Oklahoma. According to Hamilton (2004, 169), we could add to the above list Texas Tech, Sam Houston State University, and the University of Tennessee.

<sup>12</sup> Cactus Branch also reflects Knoedler's formative years as she was a student of Munkirs at Sangamon State University in Illinois and in the late 1990s. Later, she wrote a dissertation supervised by Anne Mayhew (University of Tennessee), a former student of Clarence Ayres (see Kasper 2019).

<sup>13</sup> Daniel Underwood is a professor of economics and environmental science at Peninsula College and at the University of Washington, which explains the environmental issues developed in Underwood, Friesner, and Cross (2014) and Underwood, Hackney, and Friesner (2015). Dan Friesner is professor of pharmacy at North Dakota State University and economics at the Washington State University. The focus of Friesner's studies is health care and the provision of medical assistance aimed at the well-being of the least favored groups. Friesner is also interested in economic development and social well-being, both themes are directly associated with articles published in co-authorship with the JEI, which involve environmental issues and inequalities in pay between men and women.

criticize neoclassical theory, traditional literature, and NEI, in the tradition of Douglass North, and offer alternative approaches based on socioeconomics and original institutionalism. Dolfisma, Finch and McMaster (2011) does not criticize any school of thought and / or approach. It offers a study of the vulnerability of institutions, a lacuna, in the opinion of the authors, in the institutionalists theory.

A cluster composed by two authors is related to William Dugger and Howard Sherman –Dugger and Sherman (1994, 1997, and 1998). They are known as radical institutionalists. The radical institutionalism is a segment of original institutional economics that promote recovering of the social criticism in its founding father’s writings – mainly, Veblen. According to Dugger (1988), the premises of radical institutionalism are (1) economics is a process; (2) irrationality overcomes the solidarity of the exploited classes; (3) power and status are means of authority; (4) defense of equality; (5) values and support for ideology; (6) participatory democracy; and (7) radical change instead of incremental adjustment<sup>14</sup>. The other cluster composed by two authors is built on papers co-authored by James Peach and Richard Adkisson – Peach and Adkisson (1997, 2000, 2002, and 2017). Two of the four articles – Peach and Adkisson (1997 and 2002) – present criticisms of neoclassical economics, including the study carried out in 1997 which despite not mentioning the term “institutions”, directs the criticism of not considering variations in economic conditions between regions of neoclassical economics. Regarding the research theme, the authors are concerned with economic development, such as income, growth and technology, specifically from Mexico and the USA. Richard Adkisson and James Peach are associate professors – the former is now retired – at New Mexico State University (NMSU). Surely, the geographic location of NMSU, close to the border between the USA and Mexico, influenced the authors’ research. However, there is a tradition in the original institutionalism in studying Latin America, this cluster relies on such tradition.

### **5. *Journal of Post Keynesian Economics (JPKE)***

Concerning the JPKE, 29.73% of the paper published by the journal was written in co-authorship – it means 444 articles. JPKE’s cluster map of co-authorship, placed in Figure 3, is composed by a network of four co-authors and four double co-authors networks. Being a Post Keynesian journal reflects in JPKE’s clusters of co-authorship. Among the five clusters, three of them can be classified as “Fundamentalist Keynesianism”, a cluster relies on Post Keynesianism and others traditions, specifically Original Institutionalism, and another is associated with heterodox economics survival strategies.<sup>15</sup>

The largest cluster are composed by Louis-Philippe Rochon, Matias Vernengo, Claude Gnos and Mark Setterfield, the latter is part of the current JPKE editorial team. The group of economists in this cluster can be identified as Post Keynesians. This cluster was built on nine papers, all of them relies on Post Keynesian policies to remedy economic problems and criticize neoclassical theory. Criticisms of neoclassical economics are made more explicit in the comments regarding the Washington Consensus in Gnos and Rochon (2004a; 2004b; 2004c; 2004d) and in Rochon and Setterfield’s (2007) criticism of neoclassical synthesis. A common point in Rochon and Vernengo (2003), Gnos and Rochon (2004a) and Rochon and Setterfield (2007 and 2012) is the Post Keynesianism segmentation. It is introduced two or more alternatives based on Post Keynesianism, but they also criticize the alternatives, choosing the alternative that is most consistent with Keynes’s theory and that offers the best employment and income distribution results. Clearly, Louis-Philippe Rochon, professor at Laurentian University (Canada), is the “bridge” co-author of this cluster, as he is co-author of the seven papers that compose the network.

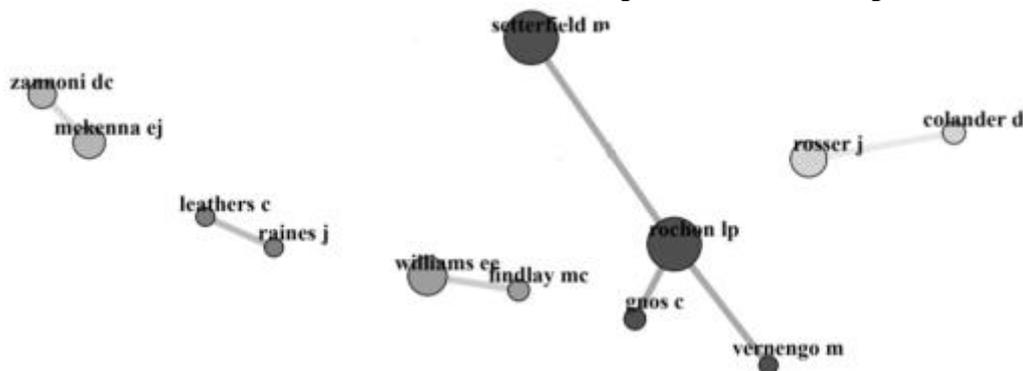
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<sup>14</sup> Dugger (1988: 1) introduces a relationship between radical institutionalism and Marxism, “Radical Institutionalism is a first cousin to Marxism”. Both schools support egalitarian systems and community-oriented production (not individual profit), which can only be achieved through a shift in industrial capitalism. In a paper that the cluster relies on, Dugger and Sherman (1994), issues about heterodoxy are pointed out. Dugger and Sherman (1994) criticizes neoclassical economics, describing it as irrelevant, unrealistic and deductive, and propose that responsible economists conduct heterodox economics studies to expose the problems of neoclassicism. Heterodoxy is positioned as a critique of neoclassical economics and related to Institutionalism, Marxism and Post-Keynesianism.

<sup>15</sup> King (2002) establishes three strands of Post Keynesian thought: (i) Fundamentalist Keynesianism is a school of thought leads to Marshall, who influenced Keynes and post-Keynesians, like Sidney Wintraub, Paul Davidson and Joan Robinson; (ii) Sraffian route leads to Marx, which includes Garegnani, Krishna Bharadwaj, Murray Milgate, John Eatwell and Luigi Pasinetti; and (iii) Kaleckian route, based on Kalecki’s adaptation of Marx’s reproduction schemes.

Rochon is prominent enthusiastic of Post Keynesianism, not only in dealing with Post Keynesian policies thought, but also regarding its organization. He is a founder of the *Review of Keynesian Economics* and was its editor from 2011 to 2018.<sup>16</sup>

**FIGURE 3 – JPKE’s Clusters Map of Co-Authorship**



We can assume that two double co-authored cluster has a relationship with the large cluster. As they are also composed by member of the Post Keynesian community. A two double co-authored cluster is composed by M. Chapman Findlay and Edward E. Williams. The connection between them relies on five articles, Findlay and Williams (1981, 2000-2001, and 2008), Williams and Findlay (1986), and Williams, Findlay and Tuggle (1989). This cluster relies on criticisms of neoclassical economics, especially with regard to efficiency of financial markets. The other strictly Post Keynesian double co-authored cluster is associated with Edward J. McKenna and Diane C. Zannoni jointly writings. Theoretical analyzing, this cluster relies on a debate about the difference between Post Keynesianism and both neoclassical and Austrian schools, it is also offered a possible approach between Post Keynesianism and critical realism. In terms of subjects, they can be classified into two groups, according to the papers: (1) Zannoni and McKenna (1981) and McKenna and Zannoni (1982 and 1987) deal with issues related to fiscal and monetary policies (in the Post Keynesian perspective); and (2) McKenna and Zannoni (1993, 1997, 1999, and 2000-2001) and Zannoni and McKenna (2007) deal with Keynes’s philosophical foundations, especially concerning the “Post Keynesian individual”.

The other two double co-authored cluster do not rely strictly on Post Keynesianism. One regards Patrick Raines and Charles G. Leathers and consists of four papers: Raines and Leathers (1996 and 2011), Raines, McLeod, and Leathers (2007), and Raines, Richardson and Leathers (2009). This cluster supports the theoretical approach between Post Keynesianism and Original Institutionalism in opposition to the efficient market theories of Neoclassical Economics. The discussion promoted by the papers the cluster is based on how to approach (financial) markets, illustrations relies on current issues, such as the 2008 financial crisis and denounce the strong neoclassicism in American policies. The other double co-authored cluster – not strictly Post Keynesian – is composed of David Colander and J. Barkley Rosser Jr., the latter is part of the current JPKE editorial team. This cluster is composed by Colander, Holt & Rosser (2007 and 2010).<sup>17</sup> The authors of this cluster – and papers that this cluster relies on – stand for heterodox strategies to be accepted by the mainstream. David Colander and J. Barkley Rosser Jr. – as well as Colander, Holt & Rosser (2007 and 2010) – argue in order to an approach of heterodox economists to the mainstream community, in an attempt to expand the scope of heterodox analyzes. Hence, the survival strategy defended by the author of this cluster is heterodoxy mobilize forces and work in the direction of mainstream’s approval. Therefore, the theme of this cluster can be described as “heterodox survival strategy by acceptance”.

<sup>16</sup> Gnos and Rochon (2004b and 2004c) are introductions to symposia, but they were not removed from our sample. As far as we can understand, symposia are important volumes for journal. Because they introduce the thought of the community associated with the journal. Agenda, debates and social identities of a community can take place through.

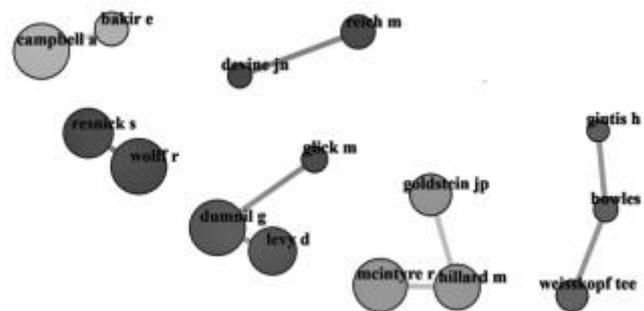
<sup>17</sup>Someone may find strange the missing of Richard Holt. However, collaboration clusters are plotted from the fifty authors who most produced in co-authorship. David Colander and J. Barkley Rosser Jr., published others co-authored papers in JPKE in addition to the papers the cluster relies on. While Rick Holt’s co-authored papers are the ones mentioned in our study. For this reason, Holt is not part of the cluster.

## 6. Review of Radical Political Economics (RRPE)

Among 1511 papers, 305 were published in co-authorship by RRPE (20.18%). RRPE's cluster map of co-authorship is composed by three cluster of three co-authors and three cluster of double co-authors, as shown in Figure 4.

A cluster of three co-authors is formed by Gerard Duménil, Mark Glick and Dominique Lévy. Their link as co-authors is strong relying on 10 papers: Duménil, Glick and Rangel (1987a; 1987b), and Duménil and Lévy (1992; 1993; 1995; 2000; 2002a; 2002b; 2002c; 2006). Papers in which this cluster the fall in the rate of profit and its association with economic crises in a Marxist perspective. Duménil is the bridge co-author of this cluster. In Figure 4, there is a two co-authors cluster that shares its theme with Duménil, Glick and Lévy's. This two co-authors cluster is composed by Al Campbell and Erdogan Bakir. The paper this cluster relies on are Bakir and Campbell (2006, 2009, 2015, and 2016). This cluster is based on the analysis of the decrease of profit rate of American capitalists, it is associated to economic crises and structural change of capitalism, emphasizing the transition to neo-liberalism in the 1970s.

**FIGURE 4 – RRPE's Clusters Map of Co-Authorship**



Another cluster of three co-authors is composed by Jonathan P. Goldstein, Michael G. Hillard and Richard McIntyre. Their connections as co-authors is related to seven papers: McIntyre and Hillard (1988, 1992, 1995, 2008, and 2012), Hillard and McIntyre (1998), Goldstein and Hillard (2008). This cluster can also be classified as a Marxist one. By papers, the themes of this cluster are: (1) labor scarcity (McIntyre and Hillard 1988 and 1992); (2) the relationship between the working class and capitalists (Hillard and McIntyre 1998, McIntyre and Hillard 2008 and 2012, and Goldstein and Hillard 2008); and (3) criticism on approaching radical and neoclassical-liberal theories (McIntyre and Hillard 1995). Additionally, five papers, in which this cluster is based on, introduces criticisms to neoclassical economics and liberal policies. A Marxist perspective of working-class militancy, union of the working class for challenging the capitalist system, and labor movements are introduced as alternative (McIntyre and Hillard 1988, 1992, 2008 and 2012; Hillard and McIntyre 1998). As before, there is another two co-authors cluster, it is related to the co-authorship connection between Stephen Resnick and Richard Wolff. The papers that supports that connections are Resnick and Wolff (1979a, 1979b, 1981, and 1988), Wolff and Resnick (1983), and Ruccio, Resnick, and Wolff (1990). Those papers suggest class relations for capitalist and for socialist approaches and criticism to neoclassical economy for the defense of the capitalist system as themes of this cluster. The other two co-authors cluster is more week than the formers, as it relies on just two papers Reich and Devine (1981) and Devine and Reich (1983). The co-author of the cluster are Michael Reich and James Devin The theme of the cluster is cooperation among workers and its relationship with a greater efficiency in terms of production.

Clearly, there is a great representativeness of Marxism in RRPE's cluster map of co-authorship. As far as we can understand, the history of the journal can explain that representativeness. The RRPE is sponsored by the *Union for Radical Political Economics* (URPE). It is an academic segment of the radicalism in the United States. American radicalism was an anti-McCarthyism non-violent social movement, it was interested in an agenda involving civil rights, antiwar, oppressed minorities, and intellectual movements that espoused theoretical and policy issues that would challenge the status quo (see Mata 2014). Hence, Marxism is the most important segment of URPE and it reflects in RRPE. It does not mean that RRPE is just about Marxism, in the journal's description post-Keynesian economics,

Sraffian economics, feminist economics, and radical institutional economics are also mentioned. However, our study points out a predominance of Marxism. There is just one cluster in the Figure 4 that can be understood as Marxism by history but not by practices.

That cluster is composed of three co-authors one, and it is formed by Herbert Gintis, Samuel Bowles, and Thomas E. Weisskopf. Three co-authored papers associate those authors. Gintis and Bowles (1981) and Bowles and Weisskopf (1999) point out, respectively, the relevance of the Marxist theory of work value and the importance of David Gordon, a critical economist in neoclassical economics and a defender of radical economics. Bowles, Gordon, and Weisskopf (1986) analyzes the fall in the profit rate of firms relying on traditional Marxist analysis, applying the concepts of class and competition. Gintis, Bowles, and Weisskopf are founding fathers of the URPE. It could suggest a cluster that emphasizes Marxism, however, the co-authors of this cluster moved away from the radical perspective. Gintis and Bowles are nowadays well known by their studies on behavioral sciences, agent-based modeling, and evolutionary game. Weisskopf, by his turn, studies on development and underdevelopment, macroeconomic problems of advanced capitalist economies, institutional development and economic inequalities.

### 7. Social networks and editorial structure

The co-authorship analysis establishes the formation of social networks that consists of the direct connections among heterodox economists. As in the case of co-authorship, the editorial structure of heterodox journals can also reflect survival strategies of the heterodox community. As the editorial structure plays a crucial role in guiding the production of heterodox papers, we cross our social network data with the current editorial positions at CJE, JEI, JPKE, and RRPE. Table 1 shows the co-authors identified by our bibliometric analysis who also serve in an editorial position at the heterodox journals that we are studying. The editorial position and the journal that the position is associated are also identified in Table 1.<sup>18</sup>

**Table 1 – Co-authors in editorial positions**

<i>Co-author</i>	<i>Journal</i>	<i>Position in:</i>	<i>Position</i>	<i>Co-author</i>	<i>Journal</i>	<i>Position in:</i>	<i>Position</i>
Edward Lorenz	CJE	CJE	Associate Editor	Michael Kitson	CJE	CJE	Editor
Stephanie Blankenburg	CJE	CJE	Associate Editor	Geoff Harcourt	CJE	CJE	Associate Editor
Sue Konzelmann	CJE	CJE	Editor	Alan Hughes	CJE	CJE	Editor
Tony Lawson	CJE	CJE	Editor	Jill Rubery	CJE	CJE	Associate Editor
Frank Wilkinson	CJE	CJE	Editor	Damian Grimshaw	CJE	CJE	Editor
Giuseppe Fontana	CJE	JPKE	Editorial Board	Robert McMaster	JEI	RRPE	Editorial Board
Jonathan Michie	CJE	CJE	Editor	Mark Setterfield	JPKE	JPKE	Editorial Board
Simon Deakin	CJE	CJE	Editor	J. Barkley Rosser	JPKE	JPKE	Editorial Board

Source: Elaborated by the authors.

We built table 1 on the hypothesis that as our bibliometrical analysis we identified the stronger social networks from each journal, people from those networks could be seem as distinguish members of that community. As a result, in some level, we expected some similarity between the clusters of a journal and its editorial positions. The expectation was not that the clusters of a journal would be reflected in very similar way. As we are analyzing, the current editorial structure if the journals and the clusters regards the

<sup>18</sup> As we are looking for identifying the place of co-authors, highlighted by our bibliometrical study, in the current editorial structure of the journals, we went through CJE's, JEI's, JPKE's, and RRPE's websites. The item "position" in table 1 is the identification of the role played by the person associated with it. In the table 1, the names of the roles – editor, associate editor, editorial board, or patron – are the same as in the websites. There is just one difference between table 1 and a website, Edward Lorenz is placed as Ned Lorenz at CJE's website. The reason to rely on the websites is the editorial structures of the journals can be different. Hence, we understood the information on the websites as the information that the journals can offer to the general public and we comprehend it as the most important information about the journals. As far as we understand, it is a way to deal with different editorial structures.

paper published by the journals since their foundation. Hence, a co-author or a cluster – identified by our paper – could play an important position in the past or the cluster was important in the past and it is not anymore. The result is different than we expected. We identified several CJE’s clusters – more than we expected – in its editorial structure. There is no representation of JEI’s or RRPE’s clusters in their editorial structure. Just two JPKE’s co-authors are member of its editorial board – Mark Setterfield and J. Barkley Rosser. There is little cross-fertilization, a social network of a cluster reflected, just Giuseppe Fontana, a CJE’s co-author, is on the JPKE’s editorial board and Robert McMaster, a JEI’s co-author, is on RRPE’s editorial board. Hence, we explored the clusters that are composed by Fontana and McMaster. The latter’s cluster give us no analytical insight. However, the former’s cluster is composed by Fontana (of course), Philip Arestis, and Malcolm Sawyer are part of JPKE’s honorary board of directors<sup>19</sup>. Hence, there is place of Post Keynesianism not only in CJE’s social networks, as previously introduced, but also in its editorial structure.

About the CJE, among its seven clusters of co-authorship, four are reflected in CJE’s – and another is reflect in JPKE’s editorial structure as previously highlighted. CJE’s cluster map of co-authorship shows three co-authorship networks composed by two authors, three networks composed by three authors and a single network, the largest, composed by six authors. Five of the six co-authors of the CJE’s larger cluster are editor of associate editors, Edward Lorenz, Stephanie Blankenburg, Sue Konzelmann, Tony Lawson and Frank Wilkinson – the latter is also a CJE’s patron. The cluster on “contracts, competition, and labor relations” is perfectly represented in the CJE’s editorial structure as Jonathan Michie, Simon, and Michael Kitson are CJE’s editors. The co-authors of the cluster on “theoreticians of labor economics” is also part of CJE’s editorial structure as Jill Rubery is an associated editor and Damian Grimshaw is an editor. It means that there are two clusters of co-authorship in CJE’s map on labor economics and the every single co-author of both cluster are part of CJE’s editorial structure. CJE’s cluster on obituaries is also represented as two of the three co-authors Geoff Harcourt and Alan Hughes are associate editor and editor.

Given Table 1 was impossible do not ask ourselves the reason CJE’s editorial structure reflects its social networks, but the same does not apply to JEI, JPKE, and RRPE. As far as we understand, a hypothesis would be the different groups that manage the journals. The JEI was founded in 1967 and the RRPE in 1969, both as journals of associations, the Association for Evolutionary Economics (AFEE) and the Union for Radical Political Economics (URPE) – see Cavalieri and Almeida (2017) e Mata (2014). JPKE is not sponsored by an association, but it was created as, in 1978, a vehicle of Post Keynesian economics that was in its early years of organization in U.S. (2009a). Intellectual movements related to schools of thought founded the JEI, URPE, and JPKE – Original Institutionalism, Radical Economics, and Post Keynesianism. The history of CJE is different. The CJE was founded as a reaction to the mainstreaming process of the Economic Journal (Saith 2019). During the 1970s, young fellows from Cambridge University debated forms to deal with the mainstreaming of economics in UK. The consequence was the foundation of Cambridge Political Economy Society (CPES), in 1976, and its CJE, in 1977 (Saith 2019).

Clearly, CJE is different from JEI, JPKE, and RRPE regarding supporting structure. The JEI and RRPE are sponsored by associations. The JPKE is supported by a similar structure taking into account that there is no formal association, but individual that stand for Post Keynesianism. CJE is maintained by economists associated with Cambridge University. It means that CJE has a leaner structure than the other journals. As far as we can understand, such structure provides the consistency between CJE’s social networks and editorial structure. For instance, while JEI, JPKE, and RRPE could take regional U.S. distribution among members of the editorial board or non-U.S. representation, CJE relies on people connected to Cambridge.

## **8. Final Comments**

This paper studies the heterodox social networks by the co-authorship in papers published by heterodox journals. Those journals are CJE, JEI, JPKE, and the RRPE. In order to study co-authorship,

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<sup>19</sup> The information on the members of JPKE’s honorary board of directors is not on the website. We extract it from the first pages of (2015) Journal of Post Keynesian Economics, 2015, 37(4).

we bibliometrically built clusters maps of co-authorship for each journal. Regarding the CJE, the cluster map of co-authorship, the themes of the clusters seems to be compatible with the current scope of the journal: studies on the traditions of Marx, Keynes, Keynesians and accepts contributions from heterodox economics. In the largest cluster of CJE, the late Frank Wilkinson is “bridge” author and this cluster’s themes are (1) issues related to labor, wages and corporations, (2) macroeconomic issues in relation to the 2008 crisis, and (3) Piero Sraffa’s writings. The papers that this cluster relies or their authors are not self-associated with the label heterodox – Tony Lawson and Sue Konzelman are exceptions. However, describing the kind of economics in the papers, the term “alternative view” by all papers that compose the cluster. Philip Arestis, Giuseppe Fontana and Malcolm Sawyer composes the most cohesive CJE’s social network. As it relies on seven papers co-authored by three people. Such cluster can be understood as monetary macroeconomists based on Post Keynesianism cluster. There are two CJE’s clusters on labor economics and the other relies on obituaries (Cambridge professors paying respect to their late colleagues), critics of the neoclassical empirical methodology, and Marxism.

JEI’s clusters map of co-authorship is composed by four clusters. We understood those cluster as contemporary segmentations of Original Institutionalism. There is a very consistent cluster composed by 20 paper and five authors. Janet T. Knoedler is the bridge author of that cluster. The theme of this cluster is Original Institutionalism, but it is segmented in (1) the Cactus Branch reading of Original Institutionalism and (2) the study of Original Institutionalism as a way of improving the training in economics. Theme (1) is related to the connection of Knoedler with Dell P. Champlin and John R. Munkirs and (2) is associated with the connection of Knoedler with Daniel A. Underwood. Another JEI’s cluster relies on “socioeconomists”. Wilfred Dolfsma, Robert McMaster, and Antoon Spithoven compose this cluster. Dolfsma is a “bridge” author. There is a radical institutionalism cluster in the JEI’s map, William Dugger and Howard Sherman are the author of this cluster. JEI’s last cluster is composed by James Peach and Richard Adkisson and its theme is economic development in Mexico and USA.

JPKE’s clusters map of co-authorship addresses five cluster. Clearly, being a Post Keynesian journal reflects in JPKE’s clusters of co-authorship as three cluster can be understood as strictly Post Keynesian. The largest cluster are composed by Louis-Philippe Rochon, Matias Vernengo, Claude Gnos and Mark Setterfield. Rochon is the bridge of the cluster being the co-author of the nine papers that the cluster is based on. We can assume that two double co-authored cluster has a relationship with the large cluster. As they are also composed by member of the Post Keynesian community. A two double co-authored cluster is composed by M. Chapman Findlay and Edward E. Williams and its theme is criticisms of neoclassical economics, especially with regard to efficiency of financial markets. Another two double co-authored cluster is associated with Edward J. McKenna and Diane C. Zannoni. This cluster relies on a debate about the difference between Post Keynesianism and both neoclassical and Austrian schools, it is also offered a possible approach between Post Keynesianism and critical realism. The others JPKE’s a cluster relies on Post Keynesianism and Original Institutionalism – composed by Patrick Raines and Charles G. Leathers – and another is associated with heterodox economics survival strategies – the author associated with this cluster are David Colander and J. Barkley Rosser Jr..

Undoubtedly, there is a great representativeness of Marxism in RRPE’s cluster map of co-authorship that reflects the sponsor of the journal the URPE. It is an academic segment of the radicalism in the United States. RRPE’s cluster map of co-authorship is composed by six clusters. There is a strong cluster, relying on ten papers, composed by Gerard Duménil, Mark Glick and Dominique Lévy. The former is the bridge co-author and the cluster is related to the fall in the rate of profit and its association with economic crises in a Marxist perspective. The cluster composed by Al Campbell and Erdogan Bakir is thematic related to the previous cluster. Its theme is the decrease of profit rate of American capitalists based on economic crises and structural change of capitalism – emphasizing the transition to neo-liberalism in the 1970s. Another RRPE’s strong cluster is associated with Jonathan P. Goldstein, Michael G. Hillard, and Richard McIntyre. This cluster is built on seven papers. This cluster is thematically diverse, encompassing labor scarcity, the relationship between the working class and capitalists, and criticism on approaching radical and neoclassical-liberal theories. As before, there is another cluster related to this one. Stephen Resnick and Richard Wolff are the co-author on that cluster. Those papers suggest class relations for capitalist and for socialist approaches and criticism to neoclassical economy for

the defense of the capitalist system as themes of this cluster. Another two co-authors cluster is related Michael Reich and James Devin. The theme of the cluster is cooperation among workers and its relationship with a greater efficiency in terms of production. Finally, there is a RRPE's cluster that can be understood as Marxism by history but not by practices. It is related to Herbert Gintis, Samuel Bowles, and Thomas E. Weisskopf. It could suggest a cluster that emphasizes Marxism, however, the co-authors of this cluster moved away from the radical perspective.

This paper also cross data between co-authorship analysis and the editorial structure of the journal. As both can reflect survival strategies of the heterodox community. We identified several CJE's clusters in its editorial structure. Among CJE's seven clusters, four are reflected in CJE's editorial structure. Moreover, another reflect in JPKE's editorial structure as previously highlighted. As far as we understand, the reason the reason CJE's editorial structure reflects its co-authorship social networks, but the same does not apply to JEI, JPKE, and RRPE, relies on the groups that manage the journals. Different from JEI, JPKE, and RRPE, CJE is maintained by economists associated with Cambridge University. It means that CJE has a leaner structure than the other journals. Such structure provides the consistency between CJE's social networks and editorial structure.

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