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Content Analysis as a Method for Heterodox Economics

Anton Oleinik

Abstract: Heterodox economics emerged because of dissatisfaction with the high level of abstraction of neoclassical economics and its excessive reliance on mathematical modelling. Instead of ontological and epistemological references to the natural sciences, heterodox economists turn their attention to the social sciences and biology. The article aims to contribute to the discussion of methodology of heterodox economics and original institutionalism in particular. It explores the potential of content analysis for empirically oriented research in heterodox economics. Content analysis is widely used in the social sciences (sociology, linguistics, political sciences, legal studies) to analyze qualitative data (texts, images, videos) but is relatively unknown to heterodox economists. Content analysis takes several forms: qualitative, quantitative and mixed methods. It is argued that content analysis is not only compatible with the methodology of heterodox economics through critical realism but has a potential to contribute to its further development. With the help of content analysis, heterodox economists would be better equipped to collect and process qualitative data that prevail in social realms. A content analysis of a sample of articles published in Journal of Economic Issues (N=763) in 1967–1969 and 2010–2019 informs the discussion of applications of content analysis to heterodox economics.

Keywords: heterodox economics, critical realism, original institutionalism, American pragmatism, abduction, content analysis, qualitative data

JEL Classification Codes: B40, B41, B50, B52

Mainstream economists seldom consider the choice of research tools to be a problem. Econometrics and mathematical modelling have been a natural choice for them since the "formalist revolution" of the 1950s (Copeland 1951, 56; Hodgson 2011, 163). Experiments have been added to their toolbox more recently, with the emergence of experimental economics (Kagel and Roth 1995). The other research methods, especially qualitative ones, remain on the periphery of mainstream economic research.

The methodological uniformity in mainstream economics contrasts with a methodological diversity that characterizes its neighboring disciplines. The methodological pluralism implies that various research methods coexist. They are chosen on a case by case basis depending on the data and research questions. Content analysis is an element of methodological diversity in a number of the social sciences. As of May 2020, 57,658 texts indexed in the Web of Science mention content analysis in their topics (title, abstract, or

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keywords).[1] 10.5% of the contributions mentioning content analysis are made by scholars in nursing, 9.9% in education, 7.2% in communication, 4.7% in management and 4.2% in business. Economists—representatives of all "streams" combined—published 1.4% of the relevant papers. Could this figure be different?

A closer look at the uses of content analysis by economists reveals some noteworthy patterns. To begin with, economists are recently closing the gap with sociologists. Content analysis is more popular among sociologists (2.2% of the papers with content analysis in their topics). Since 2015 the economists have been catching up. In 2017 and 2018 they published more papers using content analysis than sociologists for the first time ever. Scholarly journals that accept content analysis as a research method are concentrated in the field of applied economics: *Energy Policy* (26 articles), *Forest Policy and Economics* (25), *Journal of Consumer Affairs* (17), and *Value in Health* (14). General economic journals are almost absent from this list. The contributing authors represent the emerging market economies in Eastern Europe (Czechia, Romania, Lithuania and Latvia) and Asia (Malaysia, Russia, China and Turkey), along with the established market economies (United States, England, and Germany). In other words, if economists accept content analysis as a research method at all, they tend to rely on it in applied research and when making sense of the situation in the emerging market economies.

Adding content analysis to economists' toolbox would enhance the methodological diversity of economics. Mainstream economists may be keen to learn about possible alternatives to econometrics and mathematical modelling, at least in order to be able to keep asserting the supposed superiority of those two methods and, at best, to complement and enrich their analyses. Applied economists and scholars in the emerging economies would particularly benefit from a recognition of content analysis as a legitimate research method in their discipline. Are there other reasons, in addition to the considerations of methodological pluralism, for promoting content analysis among economists? This article addresses the audience of heterodox economists arguing that content analysis is of particular interest for them. Content analysis is not only compatible with the methodology of heterodox economics through critical realism but has a potential to contribute to its further development. Critical realism calls for opening up economic systems by studying "the interaction of human agency and institutions or structures" (Downward and Mearman 2007, 91). Content analysis helps heterodox economists and, potentially other economists as well, better grasp human agency. Humans express themselves in general and state their intentions and motives in particular with the help of words and visuals. It comes as no surprise that Luc Boltanski and Laurent Thévenot (1991) relied on content analysis in their study of justification. Justification takes most manifest forms in acts of speech, writing, and debate. By analyzing the contents of qualitative data (texts and images), one better understands intentions behind human actions. Mainstream economists work mainly with quantitative data that express human agency in a more indirect manner being more closely related to institutions and structures. Content analysis also allows using all three types of reasoning, induction, deduction, and abduction, the first and the third having a solid standing in heterodox economics.

Accordingly, the research question addressed in the following is whether there is a place for content analysis in economic sciences and, if so, in which economic sciences? The discussion is focused on heterodox economics as the disciplinary field particularly receptive

[1] The search was conducted on May 13, 2020 using the following parameters: TOPIC: ("content analysis"); Timespan: All years; Indexes: SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI.

to the incorporation of content analysis into economists' toolbox. In the first section, a brief overview of the methodological foundations of mainstream (neoclassical) economics and heterodox economics will be offered. The second section will be devoted to content analysis and its status as a critical realist research method. Results of the content analysis of a sample of publications in a leading heterodox economic journal will be presented in the third section. As it stands, heterodox economists do not fully appreciate content analysis and its potential for their discipline.

In the Search of Non-Mathematical Foundations for Economics

Neoclassical Project and its Perception by Heterodox Economists

Discussions of the key assumptions of mainstream (neoclassical) economics are presently rare among advocates of this "stream" in economics sciences. The reason is simple. Mainstream economics aspires to the status of a paradigmatic science. Scientific paradigm is "the body of belief (one) could take for granted" (Kuhn 1972, 88). Those economists, who share the premises of neoclassical economics, tend to take them for granted. Inversely, the economists, who do not associate themselves with the mainstream, are well positioned to make the assumptions of neoclassical economics explicit and to question them. As paradoxical as it sounds, heterodox economic publications are presently the best, if not the only, place for reviewing key assumptions of neoclassical economic theory.

The core of neoclassical economics includes several elements. The model of rational choice and the assumption that interactions in the market tend to reach an equilibrium (if not *the* equilibrium) are two of them. There is some disagreement with respect to the rest: Geoffrey Hodgson (1988, xiv) believes that the absence of chronic information problem should be added to this list whereas Thráinn Eggertsson (1990, 5) emphasizes stable preferences. However it may be, for the purposes of the proposed inquiry, the methodological assumptions should be given priority over the theoretical beliefs that neoclassical economists tend to "take for granted."

Heterodox economists revive methodological debates that were popular among economists in the past. A battle over the methodology between Gustav Schmoller and Carl Menger in the late nineteenth century, the *Methodenstreit*, was one of the first in the history of economic thought. Schmoller advocated the historical approach of the German historical school whereas Menger looked at physics as a model (Nardinelli and Meiners 1988, 545). The opposition between the methodological approaches of the social sciences and those of the natural sciences has characterized the evolution of economics since then and has had an impact on its status as a scientific discipline (a social science or a "proper" science).

Neoclassical economists, following Menger, accept objectivism as an ontological position (social reality is objectively given) and positivism as an epistemological position (knowledge is generated through deduction and induction with the help of empirical inquiries). Objectivism and positivism imply references to the natural sciences as a model (Bryman, Bell, and Teevan 2012, 7–12). The mainstream approach tends to replicate the methodology of the natural sciences in a social realm (Lawson 2003, 67) even if not all neoclassical economists go as far as to compare themselves with physicists. Alfred Marshall, for instance, takes a more moderate position. He acknowledges imperfection of our knowledge of the "tendencies of human action" and, as a result, greater imprecision of reasoning in economics than in physics. For Marshall, economics is closer to meteorology than to physics: "though many forces act upon Jupiter and his satellites, each one of them acts in a definite

manner which can be predicted beforehand: but no one knows enough about the weather to be able to say beforehand how it will act . . . The laws of economics are to be compared with the laws of the tides, rather than with the simple and exact law of gravitation" (Marshall 1890, Bk.1; Ch. 3; 8sect; 3).

Regardless of the version of the natural sciences chosen as a source of methodological inspiration, soft (meteorology) or hard (physics), mainstream economists rely on mathematical modelling. Meteorology may not yield robust predictions, like physics, yet it also relies on mathematical models and simulations. Accordingly, heterodox economists define the mainstream project "in terms of its enduring reliance, indeed, unceasing insistence, upon methods of *mathematical modelling*," including econometric modelling (Lawson 2013, 950, emphasis in the original; see also Hodgson 2011, 164). Neoclassical economics is mathematical economics in this sense.

The mathematization of economics has facilitated communication both within and between disciplines. Mathematically oriented scholars speak the same language. Randall Collins (1998, 535) argues that mathematics is a necessary element of any successful science, along with empirism and the development of research technology. At the same time, mathematization requires making a number of assumptions that prevent the scholar from discovering "how things actually are" as opposed to "how they might be supposed to be, if not in our universe, then in some other" (Peirce 1997, 121). Neoclassical economics necessarily has a normative component in this sense.

Heterodox economists unveil two conditions that make mathematical modelling possible: conceptions of atomistic individuals and closure (Lawson 2004, 334; Lawson 2006, 494). Mathematic—econometric—models are built on the assumption of independence of observations. It follows that units of analysis, be they individuals, firms, or countries, neither communicate nor interact being "independent of each other" (Warner 2013, 25). The condition of closure holds if a model is "correctly specified" (i.e., we have included all the variables that should be included in the analysis and excluded any irrelevant ones) (Warner 2013, 26).

A correctly specified model allows one to achieve closures of causal sequence. One set of variables (conceptualized as "independent variables") are supposed to explain variation in the "dependent variable" controlling for the potential impact of third variables ("control variables") (Lawson 2006, 493–494). The discovery of closed causal relationships and the confirmation of their existence by way of testing the relevant hypotheses constitute the essence of the positivist approach.

Heterodox economists argue that the two above formulated conditions do not necessarily hold in a social realm, which limits the applicability of mathematics in economics as well as the other social sciences (Lawson 2006, 493; Lawson 2013, 953). On the one hand, individuals communicate and interact, which leads to their interdependence. Max Weber ([1922] 1968, 4) considers interdependence as a distinguishing feature of social realms: "action is 'social' insofar as its subjective meaning takes account of the behavior of others and is thereby oriented in its course." On the other hand, social systems do not have a closed character. They constantly evolve as a result of changes induced both from inside (by social action of individuals and groups) and outside (no social system is totally isolated from the others).

The former type of changes attracted heterodox economists' particular attention since it helps better locate the source of uncertainty in social realms. In contrast to heterodox

economic journals (Almeida and de Paula 2019), neoclassical economic journals do not welcome publications addressing the issues of uncertainty (Hodgson 2011). If risk can be quantitatively assessed and, hence, taken into account in mathematical models, uncertainty cannot (Harsanyi 1977, 22–25). Marshall, probably the least orthodox of early neoclassical economists (Lawson 2013), explained uncertainty in terms of limitations of our knowledge of human behavior. Those imperfections make a correct specification of mathematic models impossible. However, all knowledge is limited, the natural sciences make no exception. Heterodox economists attribute uncertainty to human agency. To the extent that humans possess at least some freedom of choice, their action is not fully determined by social structures within which they operate. The individual can leave the path imposed by the existing structures, which differentiates social realms from natural realms, where units do not possess a power to choose (Lawson 1997, 32, 174; Atkinson, 2004, 280).

Heterodox Projects

Continuing this line of reasoning, heterodox economics can also be defined both in terms of specific theoretical assumptions and a particular methodology. Heterodoxy serves as an umbrella term to cover sometimes long-standing, separate heterodox projects: post-Keynesianism, original (old) institutionalism, feminist, social, Marxian economics, among others (Lawson 2006, 484; Lee et al. 2010). The rejection of the elements that constitute the "hard core" of neoclassical economics can be used as a proxy for a theoretical definition of heterodoxy. Changes in its "protective belt" (non-critical assumptions) lead to a correction of the neoclassical approach as opposed to its rejection (Eggertsson 1990, 6).

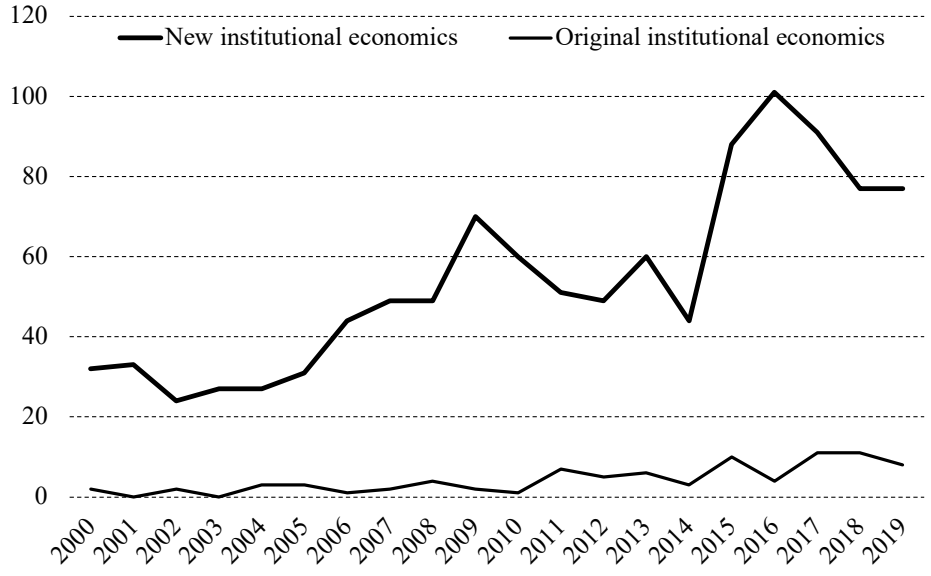
New Institutional Economics, NIE, serves as a case in point. NIE does not represent a departure from the neoclassical approach since it calls for modification in its protective belt only: incompleteness of information and contracts, imperfect competition are allowed. As a result, NIE turned out to be more compatible with the mainstream than the other branch in institutional economics, Original Institutional Economics, OIE. OIE rejects the model of rational choice and the expectation that the market necessarily clears. Instead of individuals and commodities, OIE places transaction in the center of analysis (Commons 1931, 652). The radicalism has a price, however. The number of publications in scholarly journals indexed in the Web of Science mentioning NIE significantly exceeds the number of contributions mentioning OIE. The gap has been widening during the past twenty years (figure 1).

Heterodoxy can also be defined in methodological terms. To begin with, "a rejection of the view that formalistic methods are everywhere and always appropriate" characterizes the heterodox approach (Lawson 2006, 492). It does not suffice, however, to state what the heterodox methodology is not. Frederic Lee and Bruce Cronin (2016b, 1) offer a positive yet broad definition of the methodology of heterodox economics. According to those and several other authors (e.g., Downward and Mearman 2007), critical realism constitutes the methodological foundation of heterodox economics.

Critical realism can be better understood by an alternative take on causation that it provides. Instead of closing causal sequence, critical realism opens it up. Seen through the critical realist lens, causal sequence is embedded in the existing social structures. Social structure, in its turn, both shapes human action and is shaped by choices made by individuals and groups. Causal sequence significantly extends as a result, whereas the simplicity of

relationships between a cause and an effect disappears. A cause emerges to be an effect of the other cause, which in turn has its own causes.

Figure 1. Number of Scholarly Publications Mentioning NIE and OIE Compared, 2000–2019



Source: Web of Science[2]

In what follows, principal attention will be devoted to OIE as a heterodox approach. While each heterodox approach has its own specific assumptions and methods (e.g., Marxism relies on dialectical methods), critical realism tends to be particularly deeply rooted in OIE. Original institutionalists and pragmatist philosophers (OIE and American pragmatism are closely connected) devoted significant attention to the issues in causation (Peirce 1992, 197–217; Morgan 2016). Thorstein Veblen ([1898] 1998, 411), one of the key figures in OIE, wrote on the progressive separation of causal sequence from "a cumulative process of adaptation of means to ends . . . both the agent and his environment being at any point the outcome of the past process" on several occasions. He attributed this separation to the spread of the industrial process and the resulting substitution of the workmanship by the machine process. The latter implies fragmentation of tasks and specialization of labor, which prevents the human from perceiving holistically and dialectically (Veblen [1899] 1934, 386; Veblen [1918] 1957, 6, 55; Veblen [1906] 1972, 25). According to Veblen, science, including economics, has evolved accordingly. The horizon of causation has been reduced.

Critical realism calls for development of a specific type of reasoning that would help extend causal sequences re-opening them. Neoclassical economics relies on deduction (because of its normative dimension) and, to a lesser extent, on induction. Heterodox economists in addition use abduction as a third type of reasoning promoted by American pragmatists.

[2] The search was conducted on December 31, 2019 using the following parameters: TOPIC: ("new institutional economics OR new institutionalism"; "old institutional economics OR original institutional economics OR old institutionalism OR original institutionalism").

Abduction appears particularly suitable when making sense of uncertainty without reducing it to risk. Deduction starts from theory. Induction builds theory. Abduction aims at providing a range of plausible explanations[3] none of which is definite (Morgan 2016, 30). Charles Peirce (1997, 245) defines abduction as "the operation of adopting an explanatory hypothesis." He further adds that "any hypothesis . . . may be admissible, in the absence of any special reasons to the contrary, provided it be capable of experimental verification and only in so far as it is capable of such verification" (Peirce 1997, 250).

Two features of abduction seem particularly important. First, explanations have a tentative character leaving room for further revisions and changes. Deduction implies risk (e.g., the risk of making a type I or a type II error), whereas abduction does not rule out uncertainty and doubts. Second, abduction necessitates empirical verification through experimentation. American pragmatism places heavy emphasis on experiments and experimental observations (Dewey 2007, 157). An inquirer checks whether her hypothesis can be tentatively accepted with the help of trials and tests.[4] A hypothesis holds as long as those trials and tests do not indicate that another, more plausible explanation, should be retained. The same abductive reasoning applies to inquiries in day-to-day life and to scientific research.

According to American pragmatism, experimentation is necessary not only to test hypotheses, but also to develop them. Raw data, or datum in John Dewey's terms, are transformed into information, or ideatum (meaning-of-datum) through experimentation (Dewey 2007, 71).[5] Experimentation helps select data that are relevant to the inquiry. Dewey warns against perceiving objects and qualities as "given" to the inquirer. "Objects and qualities as they naturally present themselves or as they are 'given,' are not only *not* the data of science but constitute the most direct and important obstacle to formation of those ideas and hypotheses that are genuinely relevant and effective" (Dewey 1939, 425, emphasis in original). From this perspective, the sample size counts less than the criteria for selecting relevant cases (1939, 432). Not all cases inform the reasoning by abduction. The criteria of relevance are set neither in advance, as in the reasoning by deduction, nor retrospectively, as in the reasoning by induction. These criteria emerge and evolve in the process of experimentation. This is true for the natural sciences as well as for the social sciences. The only particularity of the social sciences refers to the fact that "the material of social inquiry . . . exists chiefly in a crude qualitative state" (Dewey 1939, 493), whereas in the natural sciences the inquirer mostly deals with a crude quantitative material. It is precisely the task of collecting, processing and analyzing qualitative data that appear to be challenging for economists in general and heterodox economists in particular.

Content Analysis: A Critical Realist Method?

Critical realism sets a general methodological framework for heterodox economics. It is compatible with a number of particular research methods. A research method and a research methodology could be usefully differentiated in the following manner:

[3] A parallel could be drawn here with the concept of reasonableness widely used in the Common Law. Reasonableness, in contrast to correctness, leaves room for a range of plausible explanations.

[4] The requirement of testing a working assumption through experimentation subsequently evolved into the concept of reality test that plays an important role in the contemporary theory of conventions (Thévenot 2011, 46).

[5] A similar distinction between data and information is used in contemporary information science: "if data is characterized as recorded facts, then information is the set of patterns, or expectations, that underlie the data" (Witten et al., 2017, 35; emphasis in the original).

"methods are techniques of data collection and transformation, whereas methodologies comprise combinations of methods, the practices involved in implementing them and the interpretation placed on this act by the researcher" (Downward and Mearman 2007, 79; see also Morgan 2016, 28). The range of heterodox research methods is potentially wider than the neoclassical toolbox. Heterodox economics is pluralist in two senses: it regroups several theoretical traditions (theoretical pluralism) and it relies on a number of research methods (methodological pluralism).

The handbook of heterodox research methods (Lee and Cronin 2016a) offers an overview of grounded theorizing,[6] historical method, survey method, ethnography, experiments, factor analysis, cluster analysis, regression analysis, social network analysis, and mathematical and agent-based modelling. Lee and Cronin's list is not exhaustive, however. Content analysis is notably absent from their list. "Content analysis is a set of methods for systematically coding and analyzing qualitative data and for testing hypotheses about texts" (Bernard 2013, 536–537) and images.[7] Content analysis aims, on the one hand, to interpret data and, on the other hand, to compress it by way of identifying document fragments relevant to a research question and quantifying the information that those fragments contain. Content analysis can be compared with mining: in order to find a few grains of gold (bits of relevant qualitative information, ideatum), one needs to process a significant volume of other materials (large volumes of data, datum): sand, gravel, rocks, etc. Once those bits are located, they can be used to produce a valuable piece (i.e., to interpret human intentions)—as they are expressed through text or image—and to connect them to institutions and structures. Content analysis emerged and started to gain popularity in the mid-twentieth century remaining virtually unknown to heterodox economists. This article aims to bridge the gap advancing arguments as to why content analysis should be considered as an integral part of heterodox economists' toolbox.

What makes content analysis a research method suitable for heterodox economists? First, content analysis has been developed to process qualitative data: texts, images, and video materials. It helps interpret their contents in the light of the analyst's interests or research questions. Content analysis also helps "mine" the material in a crude qualitative state extracting from it the information relevant to an inquiry. Qualitative data being the input of content analysis, the interpreted and compressed information constitutes its output.

Second, content analysis allows quantifying the information extracted from the "raw" qualitative data. Frequencies of concepts ("codes") found in a text or image, as well as their co-occurrences give a quantitative expression to patterns in data. While "purists" may object to quantification of qualitative data in any form (Lenger 2019, 959; Downward and Mearman 2007, 84), without quantification it is difficult to "compress" data and to reach out to the audiences, who used to work with numbers. Neoclassical economists have developed a numerical mind and disputes with them may be facilitated if patterns in qualitative data are expressed in numbers. Critical realism by no means excludes quantification.

Third, content analysis has several forms (Oleinik 2011): qualitative (manual coding of texts and images), quantitative (ranging from words co-occurrences to topic modelling), and mixed (ranging from the coding of texts with the help of ad hoc dictionaries to semi-

[6] Vladimir Yefimov (2003; 2016) actively promotes the method of grounded theory among economists in general and its usefulness for making sense of the emerging markets in particular.

[7] The reference to a *set* of methods is noteworthy. Some scholars argue that content analysis is more than a research instrument inviting to consider it as a research methodology (Alexeev 1973, 21). According to them, content analysis allows perceiving a social realm through the prism of textual and visual records.

supervised machine learning using hand-coded—"labeled"—sample texts or images). The codebooks (the lists of concepts extracted from data) for content analysis may be created either in the process of coding, which is particularly the case of in vivo coding borrowing the language of the source, or prior to the start of coding.

Qualitative forms of content analysis are easier to grasp intuitively since they derive from commonsensical reading. They assist in interpreting and understanding texts or images being in this sense compatible with the "interpretivist approach" in the social sciences whose task "is the interpretation of action in terms of its subjective meaning" (Weber [1922] 1968, 8). By reading and coding, one discovers new meanings creating new qualitative data in this sense. The analysis of metaphors underpinning the liberal and conservative political discourse in the United States serves as an example. George Lakoff did not work with a formal sample to identify two key metaphors, government as a "strict father" (conservative) and government as a "nurturant parent" (liberal), being inspired by heterogenous texts and speeches (Lakoff 2002, 13). Metaphors are notoriously difficult to identify with the help of algorithms regardless of their sophistication (Oleinik 2019).

Quantitative content analysis requires the conversion of qualitative data into numbers (frequencies of particular words in a text, in the simplest case). In contrast to qualitative content analysis, quantitative content analysis aims at extracting data instead of creating data. It is assumed that the source already contains meanings, they just need "mining" and "deciphering." Daniel Diermeier and co-authors (2011) offer an example of a purely quantitative analysis of the same subject, the political discourse in United States. Unlike Lakoff, they worked with a formally constructed sample of speeches delivered at the U.S. Senate by liberal and conservative senators comparing relative frequencies of words that best help distinguish between the liberals and the conservatives. They use a sophisticated algorithm, Support Vector Machines (SVM), that divides cases (speeches in the circumstances) represented as points in space into separate categories (liberal and conservative) maximizing a gap between the categories. The quantitative content analysis showed that the key words distinguishing liberals are energy and the environment (or alternative energy), corporate interests and lobbying, health care, inequality, and education. The key words proper to conservatives are taxation, abortion, stem cell research, family values, defense, and government administration. Nothing figurative or said between-the-lines. The key words were "extracted" with the help of a technically sophisticated procedure of "mining."

One needs to bear in mind that the quantitative branch of content analysis is more compatible with positivism and objectivism than with critical realism. The Sapir-Whorf hypothesis, according to which an individual's intentions are shaped by the language she uses, constitutes one of the assumptions of quantitative content analysis. Her freedom of choice is presumably determined by linguistic structures as a particular form of social structures (Jurafsky and Martin 2000).

Mixed methods of content analysis attempt to bridge the qualitative-quantitative divide. In one example (Oleinik 2015), a sample of the transcripts of presidential yearly addresses delivered in four countries, the United States (state of the union addresses), Canada (speeches from the Throne), Russia (presidential addresses to the Federal Assembly), and Kazakhstan (state of the union addresses) were first manually coded. At a second stage, a dictionary containing words and expressions commonly found in the coded fragments was created. At a third stage, a larger sample of the transcript was automatically coded with no human input. This sequence allowed complementing human subjectivity with the analysis

of frequencies and word co-occurrences. Norman Fairclough (2000) offers another example of studying political discourse using mixed methods content analysis. He reads political texts without limiting himself to their interpretation. He also compiled a computer "corpus" of the British New Labour texts, which allowed him to identify key distinctive words, such as "new," "reform," "deliver," "promote" and "young."

This plurality of forms makes content analysis compatible with all three types of reasoning, including abduction. In vivo coding ("Give me that which I want, and you shall have this which you want" serves as an example since this sentence usefully summarizes Adam Smith's thought expressed in an excerpt from his *Inquiry into the Nature and Causes of the Wealth of Nations*; reproduced below) is often an element of grounded theorizing. In vivo codes are subsequently aggregated and classified, which constitutes a next step in the reasoning by induction. Pre-existing codebooks allow operationalizing deductive hypotheses. If pre-existing codebooks change and evolve in the process of coding, this paves the way to experimentation and the reasoning by abduction. Which version of the codebook better captures the ideas in a text or an image?

The fact that several codebooks can be developed for the purposes of content analyzing the same text or image deserves special mention. The content extracted (mined) from a document has a contextual nature, which makes content analysis particularly suitable for performing various *interpretative* tasks. "Content is . . . emerging in the process of a researcher analyzing a text relative to a particular context" (Krippendorff 2004, 19). A first inquirer (reader or viewer) pragmatically perceives it one way whereas a second inquirer—in another way. The number of inquirers and, hence, codebooks, is potentially unlimited.

Let us consider an excerpt from Smith's treatise (figure 2). Since Smith wrote it before the emergence of neoclassical economics, its various interpretations, including heterodox, are equally legitimate. Accordingly, two concepts can be identified (self-interest and sympathy), depending on the inquirer's background (neoclassical or heterodox) . Smith himself showed interest in both since he discussed sympathy at length in his second major work, *The Theory of Moral Sentiments* ([1759] 1869, 12): "we sometimes feel for another, a passion of which he himself seems to be altogether incapable; because, when we put ourselves in his case, that passion arises in our breast from the imagination, though it does not in his from the reality." For Smith, sympathy is not alien to the market. Instead, the market's functioning requires that a party to a market transaction puts him or herself in the other party's case.

The uncontested status of Smith's treatise makes it a good candidate for studying economic discourses.[8] The word "discourse" is used here in plural for the same reason as Robert Heilbroner (1990) spoke of ideolog*ies* of economics. As indicated previously, economics aspires to the status of a paradigmatic science without having achieved the required theoretical and methodological unity. The existence of heterodox economics is indicative that theoretical and methodological pluralism is not extinct.

Social economists agree that the market has a moral dimension. Accordingly, they would code fragments that highlight the importance of sympathy (by "boxing" them) whereas neoclassical economists naturally focus on fragments that convey the idea of self-interest (by underlining them). Both codes provide useful information on intentions of those who enter the market. The list of the possible interpretations does not stop here. A Marxist interested in the primitive accumulation of capital would *italicize* some bits of information on the

[8] For a similar reason Arjo Klamer (1990) selected the introductory chapters of Paul Samuelson's textbook for his study of economic discourse.

conditions of the poor. This code sheds light on institutions and structures. A feminist scholar makes **bold** two sentences indicative of gender stereotypes. Gender stereotypes have both intentional and structural components (when gender inequality is embedded in extant institutions). If, by chance, an inquirer into eating habits in eighteenth century Scotland came across Smith's book, her attention could be attracted to a still other (shadowed) passage enlightening the inquirer on what was expected for a dinner at that time (meat, bread, and beer).[9] No text, including the scholarly article that is expected to convey one idea only, excludes a plurality of interpretations (Oleinik et al. 2017). Paul DiMaggio, Manish Nag, and David Blei (2013, 590) use the concept of "heteroglossia" to discuss multiple meanings extracted from a text. Multiple interpretations are a rule rather than an exception.

Figure 2. Coded Excerpt from Adam Smith's *Inquiry into the Nature and Causes of the Wealth of Nations*

> But man has almost constant occasion for the help of his brethren, and it is in vain for him to expect it from their benevolence only. He will be more likely to prevail if he can interest their self-love in his favour, and shew them that it is for their own advantage to do for him what he requires of them. Whoever offers to another a bargain of any kind, proposes to do this. Give me that which I want, and you shall have this which you want, is the meaning of every such offer; and it is in this manner that we obtain from one another the far greater part of those good offices which we stand in need of. It is not from the benevolence of the butcher, the brewer, or the baker that we expect our dinner, but from their regard to their own interest. We address ourselves, not to their humanity, but to their self-love, and never talk to them of our own necessities, but of their advantages. *Nobody but a beggar chooses to depend chiefly upon the benevolence of his fellow-citizens.*

Source: Smith (1776) 1859, 7

The situation becomes more complicated when several readers have the same background. If two neoclassical economists read and code the excerpt, it is not excluded that one of them may highlight the most manifest expression of self-interest only (the fourth sentence) whereas the other—all mentions of self-interest (the second, fourth, and fifth sentences). The results of the content-analysis then lack reliability. Content analysts tackle the issue of reliability by calculating the coefficients of inter-coder agreement (the Jaccard index, Cosine similarity, Krippendorff's α, Cohen's κ, Scott's π, Bennett et al.'s S, etc.) some of which are chance-corrected (i.e., take into account that the inquirers may agree by chance) (Krippendorff 2004, 241–250). The higher a coefficient of inter-coder agreement, the more reliable is their interpretation.

The other way to increase the reliability of coding consists in auto-coding using custom-built dictionaries. Their entries match the structure of the codebooks and contain relevant words and their combinations. For instance, the entry "self-interest" may contain—depending on the language of source data—"utilit*," "egotis*,"[10] "interest" *near* "own," "hedonist*," etc. Once a dictionary is manually compiled, it can be used in auto-coding with no further

[9] If a sentence conveys several ideas, several codes can be attached to it (see the second, fourth, and fifth sentences).

[10] * refers to any letter or their combination.

human input. Some "off the shelf" dictionaries are also available: WordNet (a lexical ontology of common English word knowledge expressed in terms of concepts called *synonym sets*), WordNetAffect (a dictionary of affective words), SenticNet (a dictionary for polarity—negativity vs. positivity—detection and emotion recognition), to cite just a few. "Dictionary-based computational approaches to content analysis make the issue of (inter-coder) reliability moot" (Soroka 2014, 354).

Some forms of content analysis require human input at the stage of interpretation of their results only. Various analyses of word co-occurrence, including topic modelling (the detection of meaningful clusters of co-occurring words) illustrate the idea of quantitative content analysis (DiMaggio, Nag, and Blei 2013). Quantitative content analysis, when combined with machine learning, which is increasingly the case, paves the way to processing big qualitative data.

Returning to the links that exist between critical realism and content analysis, a plural interpretation of qualitative data and a multiplicity of the codebooks trigger experimentation and the reasoning by abduction. Since there is no single, "ideal" coding scheme, a priori no certainty can exist as to which one is better than the other. The content analysis always faces uncertainty. Particular concepts to be discovered in a text or an image play the same role as "hypotheses to be employed in observation" (Dewey 1939, 505). By applying them (coding), the inquirer simultaneously contributes to the transformation of raw data, datum, into information, ideatum.

Similarly to explanatory hypotheses, some concepts provide a better fit to the data than others. In the example above, the neoclassical take is probably closer to Smith's reasoning than the heterodox ones, as expressed even in the relative frequencies of the coded fragments. The fit is never perfect, however. The selection of relevant concepts in content analysis requires experimentation and reasoning by abduction. The inquirer *intervenes* into the textual or visual image of a social realm "manipulating aspects of reality in order that certain causal mechanisms can be (more easily) identified and/or theories about them tested" (Lawson 1997, 202). In content analysis, such manipulation is achieved by comparing the outcomes of alternative coding schemes.

Interventions in the real world are not always possible. The possibility for intervening into *images* of the real world is greater, which makes content analysis pragmatically attractive. The greater possibility for interventions comes at a price, however. One must bear in mind that "there is a difference and a potential gap between what is said and what is done" (Lawson 1997, 178). A text or an image of a social realm remains an image, after all.

The Case of a Heterodox Economic Journal

The potential of content analysis as an element of heterodox economists' toolbox remains largely untapped, unfortunately. Heterodox economists are even more reluctant to use this research method than other economists. Taking into account the marginal status of qualitative research methods in mainstream economics, it comes as no surprise that content analysis is mentioned in the topics of 0.31% of all articles in business and economics indexed in the Web of Science.[11] The similar figure for the leading heterodox economic journals is

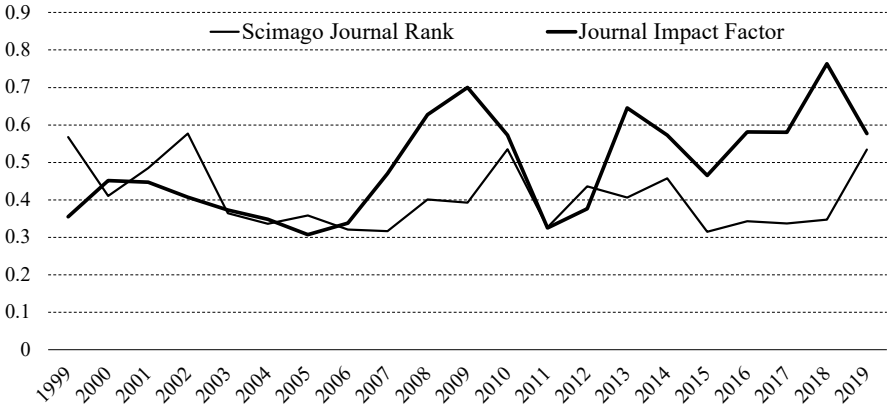
[11] Out of 1,718,999 articles, 5,358 have a mention of content analysis in their topics. The search was conducted on May 13, 2020 using the following parameters: RESEARCH AREA: ("Business & Economics") [and] TOPIC: ("content analysis"); Timespan: All years; Indexes: SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, ESCI.

seventeen times less, 0.018%,[12] which is far more surprising. Even the significant extension of the scope of the search does not reverse the pattern: content analysis is mentioned in the *full* texts of 0.26% of articles published in the same heterodox journals.[13] A case study of a heterodox economic journal intends to shed some light on this apparent paradox.

Journal of Economic Issues*: A Critical Case?*

According to Lee et al. (2010, 1424), the list of leading heterodox journals includes *Cambridge Journal of Economics*, *Journal of Economic Issues*, *Journal of Post-Keynesian Economics*, *Review of Radical Political Economics*, *Economy and Society*, *Development and Change*, *Review of Political Economy*, *Review of International Political Economy*, *Journal of Economic Behavior and Organization*, *International Labor Review*, *American Journal of Economics and Sociology,* and *Review of Social Economy* (Lee et al. 2010, 1424).[14] Publications in one of them, *Journal of Economic Issues* (*JEI*), were retained for a case study using content analysis.

Figure 3. *Journal of Economic Issues* **Rank and Impact Factor, 1999–2019**



Source: InCites Journal Citation Reports dataset and Scimago Journal Rank *(https://www.scimagojr.com/journalsearch.php?q=28952&tip=sid)*

Being a leading heterodox journal, the *JEI* has a moderate and rather stable ranking among all economic journals (figure 3). The *JEI* is indexed both in the Web of Science and

[12] Four articles out of 21,924 published in twelve heterodox economic journals, as per list compiled by Lee et al. (2010). The list is provided in the next subsection (*Journal of Economic Behaviour and Organization* and *International Labor Review* were excluded from analysis as not indexed in the Web of Science).

[13] Ninety articles out of 36,169 indexed by Google Scholar. The search using the combination of the exact phrase, "content analysis" and the heterodox journals' titles in the "return articles published in" field was carried out on May 13, 2020 at the suggestion of an anonymous reviewer. It must be noted that when the search net is cast more broadly, the results are less precise since they include mentions of content analysis *in passim* or even as a figure of speech. The following sentence located in an article written by Paul Samuelson (1994, 61, italics in the original, underlining added), the economist known for his combination of neoclassical economics and Keynesianism, for *Cambridge Journal of Economics* is a case in point: "Although I believe content analysis of Dr Feldstein's many writings will show that they exemplify the *same* paradigm as my own Keynesian one." The article contains no content analysis, after all. The other article, also located with the help of a full text search, was published in *Journal of Economic Issues*. Being a book review, it does not use content analysis. Content analysis was used by the author of the monograph under review, who "resorts to an extremely meticulous content analysis of a selected group of publications spanning the period" (Preston 1976, 975). By counting references to content analysis in the topics only one makes sure that this method was actually used or discussed by the author(s).

[14] *Review of Social Economy* had not been ranked high on the 2010 list (fifteenth out of sixty-two) but was subsequently included in the *Web of Science* index. Two anonymous reviewers suggested the addition of this journal to the sample.

Scopus, which facilitates the collection and processing of metadata of the published articles (title, date of publication, abstract, key words, cited sources, etc.)

More substantially, the *JEI* positions itself as an outlet for contributions to the scholarship in OIE and the tradition of American pragmatism represented by Dewey and Peirce.[15] OIE had a reputation of being descriptively oriented (Commons 1931, 648; Blaug 1985, 710). The descriptive orientation constitutes both a strength and a weakness of OIE. As a result of a focus on data-gathering, "the theoretical development of [old] institutionalism became frozen" (Hodgson 1988, 22).

Recently even OIE's relative strength in fact-gathering started to erode. Empirically oriented scholars also rely on NIE in their endeavors both in the field of applied economics and in neighboring disciplines. Some fact-gathering studies inspired by NIE also use content analysis. For instance, the search in the Web of Science using the combination of topics, NIE, and content analysis, produced as many hits, three, as the total number of contributions mentioning content analysis published in all leading heterodox economic journals. The authors of one study content-analyzed full texts of collective agreements in an American school district covering a period of over thirty years (Cowen and Fowles 2013, 25). In the second study (Skalická Dušátková, Zinecker, and Meluzín 2017) the content analysis of expert interviews informed a study of the regulatory regime for private equity and venture capital in Czhechia, an East European country. The authors of the third article content-analyzed hospitals' annual reports in Massachusetts (Arendt and Bigelow 2000). Their study draws on both NIE and OIE.

Since NIE now competes with OIE in empirical research, the search for heterodox research methods that could help OIE to regain its lost ground is on original institutionalists' agenda. Can content analysis be a missing link between fact-gathering (data collection) and the reasoning by abduction (interpretation, data mining, and information extraction)? If the answer is affirmative, then the same applies to heterodox economics as a whole, as long as one defines heterodoxy in terms of critical realism as a particular research methodology, and vice versa. This reasoning allows considering the *JEI* as a critical case (Flyvbjerg 2006, 230). The results of studying a critical case are applicable to other cases. Under the circumstances, the outcomes of the case study of the *JEI* will likely be valid for the other heterodox economic journals as well.

Publications in the JEI with Elements of Content Analysis

The JEI has a long history (more than fifty years at this writing). Content analysis has never been popular within its pages, however. Even if one counts any mention of content analysis in the *JEI* articles (i.e., conducts a *full* text search) one match is dated from the 1970s, two from the 1980s, two from the 1990s, six from the 2000s and the remaining three from the 2010s. Two periods were chosen for the purposes of the case study, the decade from 2010 to 2019 and the first six years following the start of the *JEI's* publication, 1967–1972.[16] Both periods cover the tenure of more than one editor-in-chief, Forest Hill and Warren Samuels in

[15] The *JEI* is published by the Association for Evolutionary Economics, AFEE. AFEE's homepage (https://afee.net/) informs the prospective contributors and readers: "the intellectual heritage of AFEE is that of the Original Institutional Economics (OIE) created and developed by early twentieth-century economists such as Thorstein Veblen, John R. Commons, and Wesley Mitchell."

[16] Since content analysis emerged as a research method in the mid-twentieth century, the *JEI* authors during both sampled periods had a reasonable chance to learn or at least to hear about it.

the late 1960s to early 1970s, Richard Adkisson, Christopher Brown, and William Waller in the 2010s. This allows reducing the impact of the editor's individual preferences.

A long list of articles that may contain some elements of content analysis was identified by consulting summaries of all 869 contributions (excluding book reviews) published in the *JEI* during the sixteen years. From 1967–1972, 186 of them were published, or thirty-one per year on average (the journal had smaller volume at that time) and 682 in 2010–2019, or 68.3 per year. Because of this disbalance, the normalized data (percentages) as opposed to raw frequencies are plotted to describe the patterns (figure 4).

A comparison of these two periods aims to identify elements of the continuity and change in methodological preferences of original institutionalists. Since only one article published in the *JEI* since 1967 has content analysis in its topic (McCarthy and Dolfsma 2009) and this article falls outside of the time frame so defined,[17] a wider net was cast by adopting a broader and less strict definition of content analysis.[18] The assumption that content analysis of sorts is employed was confirmed or refuted after reading the full version of the long-listed articles. This approach helped exclude the cases in which content analysis is mentioned without being used, focusing instead on the cases in which content analysis—broadly defined—is actually used without necessarily being acknowledged as such.

Sixteen contributions were retained in this way at the end of the day, which represents 1.8% of the published material. There is no clear pattern in the popularity of content analysis among orthodox economists (figure 4). One can conclude that content analysis has been on the periphery of original institutionalists' vision in both periods considered. Content analysis appears to be less popular among them than mathematical modelling (used in 3.3% of the articles), one of the key neoclassical research methods. Original institutionalists tend to use the case study method (in 19.9% of the publications), descriptive statistics (12.2%) and econometrics (9.6%), the other neoclassical research tool.

More than half of the contributions (52.5%) have the format of an essay. Authors of essays do not use any research method focusing on the development of theoretical arguments instead. The share of essays was particularly high in first years of the *JEI* publication. This finding is consistent with the fact that authors of more than half (51.6%) of the articles published in the JEI during the two selected periods use neither qualitative nor quantitative data. Contemporary original institutionalists seem to relegate data collection to the periphery of their scholarship, which clearly distinguishes them from original institutionalists in the past and the American pragmatists alike.

In these circumstances the sixteen articles using some form of content analysis represent an exception rather than a rule. A brief overview of the shortlisted contributions suggests that original institutionalists neither appreciate the potential of content analysis for heterodox economics, nor know premises and techniques of this research method.

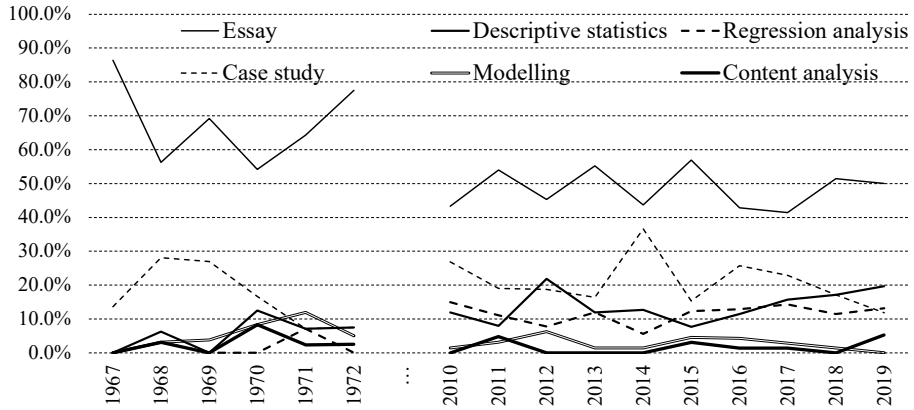
In an early attempt to use content analysis Lawrence Hines (1968) studied documents pertaining to national transportation projects in the nineteenth century United States. His

[17] A few comments on this extreme—by the current heterodox standards—case can be made nevertheless. In no other article does one find an explicit discussion of content analysis as a research method on *JEI*'s pages. With the help of the computer assisted quantitative content analysis, the authors calculated relative frequencies of negative economic and business terms found in *The Economist* magazine before and during the 2007–2008 financial crisis. They claim to discover "a linguistic business cycle."

[18] After all, if one can speak prose for more than forty years without knowing anything of it, like Monsieur Jourdain of Molière's *Le Bourgeois Gentilhomme*, then a *JEI* author could also use elements of content analysis without explicitly acknowledging this fact. After all, anyone who bookmarked a page or a fragment of a book or article when reading it did content analysis in its simplest, most rudimentary, form.

study employs element of discourse analysis, a member of the extended family of methods of content analysis. Hines looked at the evolution of the concept of public interest by identifying the contexts in which it was used and the meanings attached to it. Neither discourse analysis nor content analysis is explicitly mentioned though.

Figure 4. Research methods used by Authors of Contributions Published in *Journal of Economic Issues*, 1967–1972, 2010–2019



Source: Author's calculations. The other research methods, for instance, experiments, network analysis, and correspondence analysis, occur even less frequently.

Two articles using content analysis—broadly defined—were published in the same 1970 issue of the *JEI*. Robert Lekachman (1970) contributes to the debates in law and economics (he cites Ronald Coase's works) relying on the analysis of several court decisions. Alton Law (1970) analyzes international commodity agreements identifying continuous and changing patterns in their texts. Both authors limit themselves to producing relevant quotes without benefiting from more advanced developments in content analysis.

Arthur Miller (1972) follows the footsteps of John Commons ([1924] 1959) in using case law as a source of information. He discusses a number of legal cases indicative of the emergence of the "corporate state" in the United States. Miller's approach is purely qualitative and unstructured. He prefers interpretation to any form of quantitative analysis and limits himself to quoting relevant passages.

Glen Atkinson and Stephen Paschall (2011) revive the tradition of interpreting the court decisions going back to Commons ([1924] 1959, 47), who encouraged fellow original institutionalists to study "economic theories of the Supreme Court." Legal scholars increasingly rely on content analysis to extract information from a large and fast-growing volume of legal data (Evans et al. 2007). While Atkinson and Paschall (2016) subsequently extended their study to a full-length monograph, they do not explicitly mention content analysis.

Rojhat Avsar (2011) studies economic rhetoric in a small sample of scholarly publications. Similarly to Hines, he performed discourse analysis of sorts without explicitly describing his research method. The list of the concepts that attracted the author's attention includes what he calls "ideographs" like deadweight loss (i.e., ideologically non-neutral terms).

A bibliometric analysis of publications in nine leading mainstream journals is performed by Geoffrey Hodgson (2011). In addition to bibliometric analysis as a form of

quantitative content analysis, he also employs discourse analysis focusing on the uses of the concept of uncertainty by neoclassical economists.

Similarly to Killian McCarthy and Wilfred Dolfsma, Anton Oleinik (2013) uses content analysis to discuss the 2008–2009 financial crisis. He content-analyzed publications in the mass media to identify the industries that had privileged access to stimulus funds provided by the U.S. government to alleviate its consequences. However, the author ran content analysis simply to complement a more traditional regression analysis without attempting to carefully triangulate these two ontologically distinctive methods. Such purely pragmatic uses of triangulation are subject to critique (Downward and Mearman 2007, 85).

Breanna Bennett with co-authors (2015) conducted a qualitative content analysis of the transcripts of a series of focus groups organized with 150 farmers in Maine. They used specialized software, *NVivo*, to assist grounded theorizing. The authors offer a detailed description of their coding procedures and explicitly discuss content analysis as a research method. Their contribution is not well connected to the OIE scholarship, however. NIE is mentioned more often.

An example of quantitative content analysis is offered by Hamza Bennani (2015) who studied newspaper articles covering European central bankers' statements and policy decisions from 1991 to 2011. Bennani used a specialized software for the purposes of topic modelling. Topic modelling involves extracting topics from word co-occurrences (DiMaggio, Nag, and Blei 2013). At the same time, topic modelling is neither identified nor explained to the reader.

Richard Tacon (2016) collected his qualitative data with the help of two methods, participant observation and a series of twenty-four semi-structured interviews. He qualitatively coded transcripts of the interviews relying on grounded theory. Grounded theorizing is explicitly identified as the author's research methodology.

A critique of the monetary policies in the developing counties inspired by the mainstream approach (Ojong and Obeng-Odoom 2017) is informed by qualitative data collected in Cameroon through more than fifty interviews with users of both formal and informal financial institutions. The authors provide ample quotes from the interviews, which suggests that some manual coding took place. Content analysis is not explicitly mentioned, nevertheless.

Two scholars from Brazil (Almeida and de Paula 2019) combine a bibliometric analysis of publications in five leading heterodox economic journals and discourse analysis. Similarly to Hodgson (2011) but without referring to his contribution,[19] they focus on the concept of uncertainty. Almeida and de Paula extracted keyword co-occurrences with the help of a specialized computer program.

Michael Lainé's contribution (2019) stands apart from the other attempts to use content analysis on the *JEI* pages. He manually coded 11,042 articles in newspapers but chose not to rely on any computer program except Excel. Lainé admits that he "preferred to actually read all the articles and carefully analyze them" (2019, 778). The author's dedication is commendable but few if anyone would be able to replicate his study. In addition, while studying the content of French media's economic news reports both qualitatively and quantitatively, he does not identify his research method as a particular type of content analysis (mixed methods).

[19] This fact suggests that the assumption of independence of observations holds in this case.

Sixty-six focus groups and forty-two semi-structured interviews were conducted for the purpose of studying mutual expectations of stakeholders of microfinance institutions in India (Panda 2019). The author's grounded theorizing is informed by the qualitative coding of the transcript even if he does not explicitly acknowledges using content analysis.

An email survey with open-ended questions conducted among a small sample of German economists (its parameters are not disclosed) constitutes a source of data for the last contribution included in the sample (Lenger 2019). The author provides ample quotes from the responses that he received, which is indicative of some sort of qualitative content analysis. Alexander Lenger does not frame his research method as content analysis though.

To summarize the description of these sixteen contributions, the continuity between the two periods, 1967–1969 and 2010–2019, refers first and foremost to the consistently high share of essays among the *JEI's* publications. The lack of original institutionalists' attention to content analysis as a research method is the other persistent pattern. Even when they use some form of content analysis, they rarely acknowledge this fact and pay attention to specific requirements imposed by this research method. This would be excusable only if there was a consensus with respect to the methodology and research methods to be used. No methodological consensus exists in heterodox economics, in contrast to neoclassical economics. If content analysis is currently used by original institutionalists at all, it occurs spontaneously, unsystematically, and uncritically.

As to the changes, it is worth noting an increase in the popularity of regression analysis among original institutionalists compared with the situation of the late 1960s. They seem to be comfortable with borrowing this mainstream research method. The other notable change refers to the fact that the mean number of sources cited has been constantly increasing, from 22.3 in 1967, to 33.9 in 2010, and 44.8 in 2019. Content analysis may be of help in dealing with the increasing volume of qualitative data that the author of a manuscript is expected to process in order to get it publishable.[20] Given the growing number of sources cited, it comes as no surprise that computer assisted content analysis (with the help of CAQDAS, or specialized software), greatly facilitates bibliometric studies. Recent uses of computer assisted content analysis detected with the help of the overview of the shortlisted articles are indicative of some promising changes, however minor they may be.

A few forms of content analysis emerge as showing promise for use in OIE: the method of grounded theory and discourse analysis (both are compatible with qualitative content analysis), and bibliometric analysis (compatible with quantitative content analysis). This promise can hardly be turned into practice without a comprehensive methodological discussion, nevertheless.

Conclusion

The discussion of research methods and the subsequent analysis of the publications in the *JEI* show that currently OIE may not be as empirically oriented as the track record of original institutionalists of the past leads many to believe. The fact that more than a half of the *JEI*'s publications have the format of an essay with little or no data used is indicative of a growing diversion of OIE from data collection, not to speak about information extraction. If the *JEI* is a critical case as assumed, then the same may be true for heterodox economics as a whole.

[20] The discussion of this use of content analysis may not be specific to heterodox economics and would anyway would lead beyond the scope of this article.

The lack of consensus as to the research methods to be included in the toolbox of heterodox economists may be a part of the problem. The rejection of mathematical modelling as a workhorse of neoclassical economics has not led yet to the development and universal acceptance of distinctively heterodox research methods. One observes a growing acceptance of regression analysis by heterodox economists instead. Since there is no methodological consensus, a new *Methodenstreit* is needed in heterodox economics. The new *Methodenstreit* would allow advocates of various methods for collecting and processing qualitative data—the data of this type prevail in social realms—to state their arguments and to compare strengths and weaknesses of the promoted research methods.

This article could be viewed as an attempt to make a case for content analysis as a heterodox research method without pretending that it is the only heterodox research method. A wider acceptance of content analysis within heterodox economics could contribute to reversing the diversion of heterodox economics from empirical research in general and the empirical research informed by qualitative data in particular. As it stands, the potential of content analysis remains overlooked and underestimated by original institutionalists, and heterodox economists, for that matter.

The reasons to believe that content analysis could and probably should become a heterodox research method of choice can be summarized in the following manner. First, content analysis was originally developed to mine qualitative data (texts, images, and videos), whereas qualitative data prevail in a social realm. Content analysis may help economists to overcome their bias against qualitative data provided, of course, that they are willing to acquire necessary skills and know how. Second, since heterodox economists' ambition consists in studying intentions behind human actions, for instance, through in-depth interviews, focus groups, or secondary data, as the review of the *JEI*'s publications suggests, the task of interpretation can be better performed with the help of content analysis. Qualitative and mixed methods content analysis is compatible with the social sciences focused on interpretation and understanding. Third, content analysis paves the way to experimentation with images of a social realm. The same document, be it a text, an image, or a video, can be interpreted almost endlessly. Content analysis sets a framework for comparing various interpretations in a systematic and quantifiable manner. Fourth, content analysis does not exclude any type of reasoning being particularly suitable for abduction. Since there is no unique and "true" interpretation of a text, an image, or a video, any interpretation has the status of a "working hypothesis." It holds as long as a better—in terms of a particular research question or a specific pragmatic interest—interpretation is found.

The need for specialized computer programs (*NVivo*, *Alceste*, *Bibliometrics*–to cite just a few mentioned in the reviewed *JEI* articles) constitutes one of the obstacles to a wider use of content analysis in heterodox economics. As the volume of qualitative data grows—the number of sources cited in the *JEI*'s publications serves as an illustration—the need for computer assisted content analysis become more acute. Very few economists are prepared to read and manually code more than 11,000 documents when preparing a manuscript as one of the cited authors did. Most of the available specialized computer programs are proprietary, however.

For a hesitating scholar who is neither persuaded of the benefits of content analysis nor trained to correctly use it as a part of his or her university curriculum, the required investments of money and time may well seem unreasonable. In this case, the familiarization with the programs for content analysis freely available online could help both learn

more about content analysis and mining data for research purposes. *ThinkMate*[21] is one such online platform for content analysis created with the aim to develop on its basis a databank of qualitative data similar to those that serve to aggregate quantitative data, the World Development Indicators by the World Bank being a prime example.[22] The existence of open-access databanks of micro- and macroeconomic data, quantitative in nature, helps promote empirically oriented research in neoclassical economics. An open-access databank of qualitative data would do a similar job with respect to heterodox economics.[23]

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[21] https://www.thinkmate.org/en/

[22] http://datatopics.worldbank.org/world-development-indicators/

[23] The issue of how to store qualitative data requires a separate discussion. The task of anonymization is more difficult to accomplish with some types of qualitative data (transcripts of interviews, human images, etc.) than in the case of quantitative data. This task is not impossible to accomplish, however, and could be addressed in the new *Methodenstreit*.

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