

Economic Dictionaries on the Web

Abstract

This paper surveys the economic dictionaries available on the internet, both for free and on subscription, addressed to various kinds of audiences from schoolchildren to research students and academics. The focus is not much on content, but on whether and how the possibilities opened by electronic editing and by the modes of distribution and interaction opened by the internet are exploited in the organization and presentation of the materials. The upshot is that although a number of web dictionaries have taken advantage of some of the innovations offered by the internet (in particular the possibility of regularly updating, of turning cross-references into hyperlinks, of adding links to external materials, of adding more or less complex search engines), the observation that internet lexicography has mostly produced more efficient dictionary without, however, fundamentally altering the traditional paper structure can be confirmed for this particular subset of reference works. In particular, what is scarcely explored is the possibility of visualizing the relationship between entries, thus abandoning the project of the early encyclopedists right when the technology provides the means of accomplishing it.

1. Introduction: the internet and economic dictionaries

No less than 660 dictionaries of economics and related subjects containing entries on economics have been printed since the eighteenth century, for about 1200 separate editions (sometimes constituting completely different works).² The list is obviously growing in length. A few of them are very extensive, and explicitly dedicated to academic economists; others are equally extensive and dedicated to students, or to the general public, others are smaller or even consist in glossaries only covering a few terms. Some entries are very thorough, in the hundreds of pages, others only consist in a few words.

Different epochs have seen the prevailing of different kinds of dictionaries, addressed to different publics and published in different countries. In the eighteenth century, the so-called 'economic dictionaries' were encyclopedias concerned with practical arts and general knowledge; in the latter part of the century and in the early decade of the nineteenth century we had a number of commercial dictionaries in England, France and Germany. Later the first economics dictionaries were published in France, while in Germany there appeared a large number of very large conversation lexica concerned with social, economic and political sciences, addressed to 'the people of all standings'. Business dictionaries became more and more frequent towards the turn of the century, which in the first part was dominated by German productions. After the second world war, the number of small dictionaries addressed to the rapidly expanding market of students and laypeople multiplied very quickly, while the number of large enterprises remained more or less constant (for a more detailed history of economic dictionaries see Besomi 2011a).

1 I am grateful to Giorgio Colacchio and Cécile Dangel-Hagnauer for comments on a preliminary draft; the usual caveats apply.

2 For a bibliography, ordered by title and by compiler, updated to early 2011, see Besomi 2011b; an online version, also ordered chronologically, as well as by language, by size and by kind, can be found at <http://www.danielebesomi.ch/dictionaries/bibliography>.

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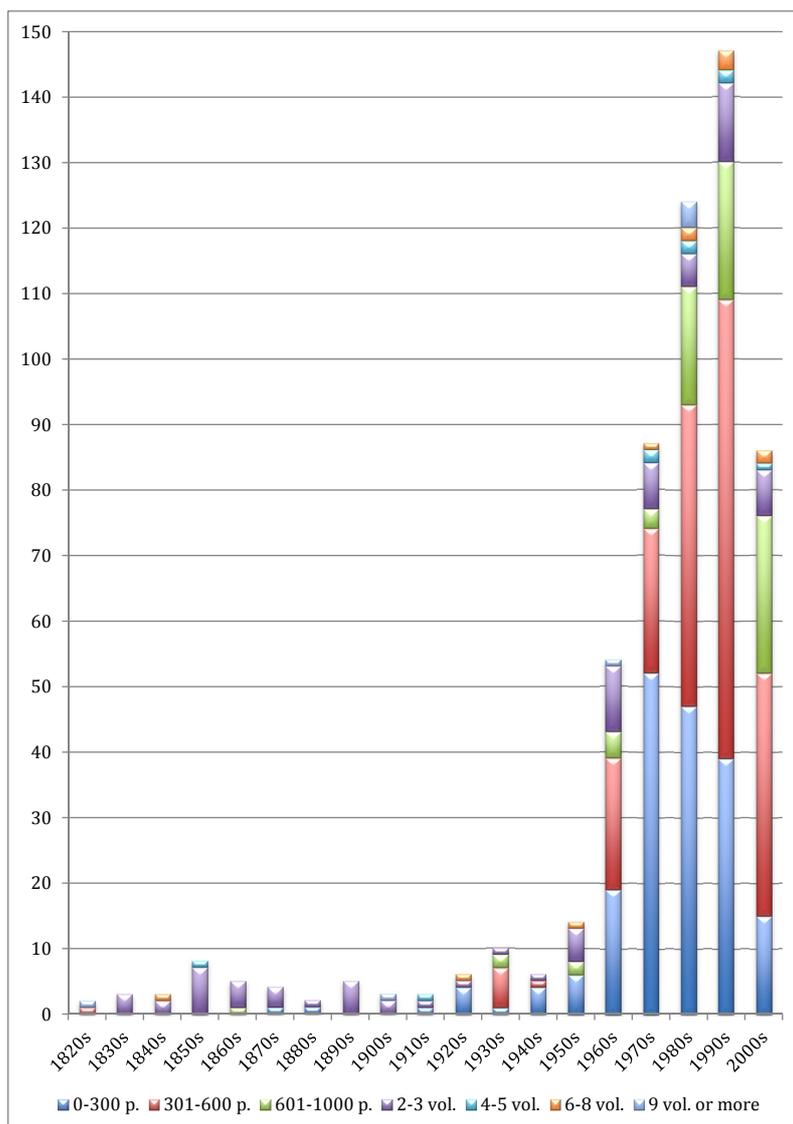


Figure 1. Specifically economic dictionaries, by size: number of titles published per decade

With the advent of electronic publishing and of the internet, which brought the possibility of producing ‘at home’, so to speak, cheap lexica often devised for a specific audience but made readily available free of charge to a large public, the situation changed. After a century of almost continuous increase in the number of monolingual dictionaries concerned with economics published (from 3 per decade in the 1900s and 1910s to 54 in the 1960s to 147 in the 1990s), the issues of new dictionaries (or new editions) dropped in the first decade of the 21st century to the same level of the 1970s (86 titles) (see figure 1³). The competition of the web naturally affects primarily the smaller lexica. The share of very small dictionaries (up to 300 pages), which was already decreasing since the 1970s when they totaled about 60% of the titles, plummeted in the 2000s to 17%

3 Data are drawn from the bibliography in Besomi 2011b. It includes titles in English, German, Italian and French (hopefully the search was exhaustive, although some library catalogues may have been a bit slow in recording the latest publications of the 2001–2010 decade; this may explain part of the drop), and some titles in other languages (Russian, Dutch, Japanese and others).

of the published dictionaries; the fraction of dictionaries between 301 to 600 pages, that had been substituting the smallest ones in the previous decades, also diminished from 48 to 43% since the 1990s; the share of large encyclopedic dictionaries (larger than 1000 pages, or two or more volumes) has remained practically constant at around 10% of the titles since the 1970s (to which it should be added that the number of sub-disciplinary dictionaries, concerned with topics such as environmental economics, economic fluctuations and great crises, health economics, international economics, finance and biographies, has boomed in the latest decades; they offer a treatment of the chosen subject at a level of detail matching that of larger dictionaries concerned with the entire spectrum). The only market that has actually expanded its share in the latest decade is that of the volumes between 601 and 1000 pages, up to 14 to 28% since the 1990s (see fig. 2): dictionaries of such a size are likely to contain more detailed information than glossaries on the web (both in number of entries and in thoroughness), and are not yet as cumbersome and unaffordable as the large sets, normally bought only by libraries.⁴

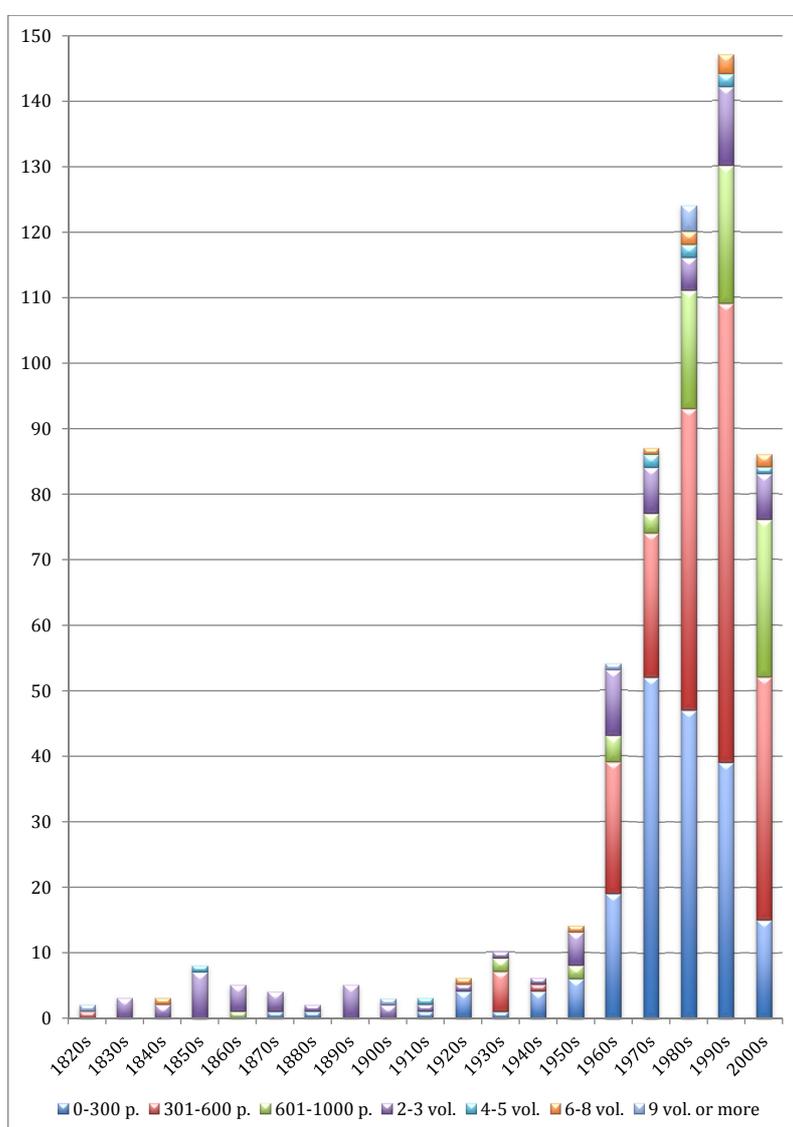


Figure 2. Specifically economic dictionaries, by size: percentage distribution, per decade

4 This evidence roughly confirms a prediction by Bergenholtz and Johnsen in 2005: 118.

E-lexicography and the internet,⁵ however, do not only bring quantitative shifts in the market. They potentially affect the mode and the constraints of constructing and presenting dictionaries,⁶ the interaction with the intended audience, the editorial standards, the kinds of materials that can be incorporated, authorship (covering the entire range from the return of single-handedly written dictionaries to collaborative authorship), the mode of presentation and the mode of access, the ease and cost of usage,⁷ the distribution.

It has been pointed out that most of these possibilities have not yet been fully and systematically explored by web-based dictionaries.⁸ The purpose of this paper is to examine, by means of a survey of the economic dictionaries available on the web, whether and how the innovations made possible (and, in principle, desirable) by the internet have been incorporated by them.⁹

A survey can be organized by many criteria, such as the intended readership or the extension and/or depth of the concrete contents of the dictionaries. These criteria have guided the commented listing of online dictionaries of economics and related disciplines presented at <http://www.danielebesomi.ch/dictionaries/bibliography/online/English.html>. For the purpose of this paper, I will look instead at the lexicographic features of economic dictionaries (completely ignoring their actual content), beginning from the simplest and proceeding towards an increasing editorial complexity.

2. ‘Classical’ dictionaries available on the web

The simplest form of internet dictionary consists in digitalization of ‘classical’ dictionaries reproduced in pdf format, often with the possibility of simple or advanced text searching, both online from the sites posting them and, if downloaded, also offline, provided that the user applies to them an optical character recognition (OCR) software. For copyright reasons, the dictionaries so digitized must have been published at least 70 years ago; more often than not, however, they have originally been published in the nineteenth century or earlier. Most of these dictionaries are freely available without charge, mainly as a courtesy of Gallica.bnf.fr (the repository of digitized works at the French National Library), archive.org, and books.google.com (paradoxically, Google has digitized several dictionaries which were subsequently withdrawn from their site. A number of these, however, were saved from deletion and reposted on archive.org¹⁰). Often bibliographical information offered by the latter two sites are inaccurate or incomplete, and the user is required to exert great care in the selection of the required edition (different editions can be altogether different works). Moreover, not all multi-volume dictionaries are always scanned in full. Among the

5 The application of electronic editing affects the conditions of production of dictionaries, while the internet affects their distribution and the possibility of interaction between the lexicographer and the readers. While the internet presupposes electronic editing, the opposite is obviously not the case.

6 The implications of the revision of constraints are multi-faceted: for instance, the internet practically eliminates space limitations, but at the same time increases the risk of information overload (see e.g. Tarp 2009).

7 Free dictionaries on the internet add a dimension to the lexicographic information cost. This is normally defined as the effort the user perceives to be doing for retrieving the needed information (see Nielsen 2008: 173-174). This, however, applies to each individual dictionary. The simultaneous presence of several free dictionaries introduces an additional degree of freedom requiring the selection of the most suitable dictionary prior to retrieving the required information. Often such a selection is implicitly operated via a search engine.

8 See for instance Kwary 2011: 30, reaffirming the earlier impression by Nielsen and Mourier that a number of electronic dictionaries have retained the earlier paper structure (2005: 110). Sven Tarp points out that most e-dictionaries are either ‘copycats’ consisting in image reproductions of dictionaries in print (a number of examples are listed in Section 2) or ‘faster horses’ (with reference to the anecdotal story according to which Henry Ford, asked whether he had consulted people’s desires before constructing his Model T Ford, answered that people not fully aware of the possibilities implicit in the new technology would have desired faster horses), namely, electronic version of printed dictionaries or internet dictionaries constructed as if they were destined to paper, but with easier and faster access (Tarp 2012).

9 For a general discussion of the lexicographers’ dreams opened by the internet and their degree of implementation see Schryver 2003 – to this, I add one of my own in the concluding paragraph.

10 For instance, a Google books search for Elster’s *Wörterbuch der Volkswirtschaft in zwei Bänden* (3rd ed., 1911) gives no results among full books, but refers to Archive.org citing as a source “Book digitized by Google and uploaded to the Internet Archive by user tpb”.

subscription sites, Gale's *The making of the modern world* offers a number of early dictionaries, accompanied by reliable bibliographical information. All these sites offer advanced search facilities, subject of course to the limitations of the OCR software originally used (small types were frequently used for dictionaries, and search engines are practically unworkable for Gothic texts, the font of choice for most German nineteenth century dictionaries, which include some of the most interesting works of that era).

Among these dictionaries there are about twenty of the financial, commercial or practical arts (then called 'economic dictionary') published in the eighteenth century, beginning from Savary's *Dictionnaire universel de commerce* (1723), Jones's *Dictionnaire des finances* (1727) and including the third, 4th and 5th editions of Chomel's *Dictionnaire oeconomique* (1732), Giraudeau's *La banque rendue facile aux principales nations de l'Europe* (1741–43, 1756, 1769, 1793 editions), the political economy, commerce and finance sections of Panckoucke's *Encyclopédie méthodique* (edited respectively by Demeunier, 1784–88, Baudeau, 1783–84, and Roussetot de Surgy, 1784–87), Robinet's monumental *Dictionnaire universel des sciences morales, économique, politique et diplomatique* (30 vol., 1777–83) and Zinke's *Allgemeines oeconomisches Lexicon* (1780). The only English dictionary belonging to this group is the 4th edition of Postlethwayt's *Universal dictionary of trade and commerce* (1774), only the second vol. of which is available on archive.org.

Commercial dictionaries were popular also in the first half of the nineteenth century, including a number of English ones now available in pdf form, including Montefiore's *Commercial dictionary* (1803), Mortimer's *General Dictionary of Commerce, Trade and Manufactures* (1810, 1819), Anderson's *London commercial dictionary* (1819), and especially McCulloch's *A dictionary, practical, theoretical, and historical, of commerce and commercial navigation* (1st ed. 1832, and some successive ones: 1835, 1842, 1869). In French, Guillaumin's *Encyclopédie du commerçant* (1837–39, 1841) and Monbrion's *Dictionnaire universel du commerce, de la banque et des manufactures* (1838–41) are also available in pdf format, as well as the German *Universal-Lexikon der Handelswissenschaften* compiled by Schiebe (1837–39).

At that time the first dictionaries of political economy were published, a number of which have been digitized (in part at least): the pioneers were the French, with Ganilh's *Dictionnaire analytique d'économie politique* (1826), Coquelin's and Guillaumin's *Dictionnaire de l'économie politique* (1852–53), Say and Chailley-Bert's *Nouveau dictionnaire d'économie politique* (1891–92, 1900). In Italian we have Boccardo's *Dizionario della economia politica e del commercio così teorico come pratico* (1857–63); and last came the British with MacLeod's *Dictionary of political economy* (aborted at vol. 1, 1863), and Palgrave's *Dictionary of political economy* (1894–99).

These were complemented by dictionaries concerned with cognate disciplines, such as finance (Say's *Dictionnaire des finances*, 2 vol. 1899–1894) and political sciences (Long's *Political Dictionary*, 1845–46 – later republished as Knight's *Standard library cyclopaedia of political, constitutional, statistical & forensic knowledge*, 1853–60 – Duclerc's and Pagnerre's *Dictionnaire politique*, 1843 and 1860, and Block's *Dictionnaire général de la politique*, 1863–64 and 1873–74, and *Petit dictionnaire politique et social*, 1896, all containing economic entries). In Germany, economics and all these disciplines were incorporated in massive encyclopedias on the 'sciences of the State', *Staatswissenschaften*, several excellent examples of which are available as pdf reproductions, beginning from Bülow's small *Encyklopädie der Staatswissenschaften* (1832, 1856), followed by Rotteck's *Staats-Lexikon* (12 vol., 1834–43, 2nd ed. 1845–48); 3rd ed. 1856–66, in 14 vol.), Schmitthenner's *Zwölf Bücher vom Staate oder systematische Encyklopädie der Staatswissenschaften* (1839–43), Bluntschli's *Deutsches Staats-Wörterbuch* (1857–70) and *Staatswörterbuch in drei Bänden* (1869–72), Wagener's 22 vol. *Staats- und Gesellschafts-Lexikon* (1859–67), Rentzsch's *Handwörterbuch der Volkswirtschaftslehre* (1866), Conrad's *et alii's Handwörterbuch der Staatswissenschaften* (6 vol. and 2 supplements, 1890–95; 2nd ed. in 7 vol. 1898–1901, 3rd ed. 1909–11), Elster's *Wörterbuch der Volkswirtschaft* (1906–07), and Bruder's *Staatslexikon* (5 vol. 3rd ed., 1908–1911). Works of similar scope but of smaller extension were also published in French (Ott's *Dictionnaire des sciences politiques et sociales*, 1854, 3 vol.) and English (Bliss's

Encyclopedia of social reform, 1897, and *New encyclopedia of social reform*, 1908). The last of the kind reproduced in pdf format (but only partly available) is Seligman's major *Encyclopaedia of the social sciences* in 15 volumes, 1930–35).

All these dictionaries were written to be printed on paper, and the digital format does not add anything besides the (far from irrelevant) possibility of searching the text; indeed, they often subtract legibility, but offer the very welcome possibility of consulting them free of charge and without looking for libraries that may have the printed version. From the editorial point of view, though, such lasting works – several of those cited here are of very high quality – could at least benefit from some form of indexation: being massive, in terms of both number of pages and file size, it is not always easy to move around the text.

3. Web-born dictionaries

At the opposite end of the range of the paper-born dictionaries listed in the previous section are the dictionaries and glossaries written to be posted online. These have been free of the constraints of the original paper edition, and could be planned at the outset taking advantage of the possibilities offered by electronic publishing in the internet environment. Yet, with a few laudable exceptions, most of these works make a rather trivial use of these possibilities and have produced glossaries and dictionaries bearing little difference with traditional reference literature except for ease and speed of use.

Some glossaries (explicitly denominated as such), characterized by a relatively limited number of terms concisely defined, are presented as alphabetically arranged lists of words, sometime placed on a single page and sometimes divided by initial letter, without cross-references and scarcely needing a search engine (a simple search can nevertheless be performed via the browser's own facility for this). These works are thus even less sophisticated than the pdf versions of printed dictionaries referred to in the previous section. Among these, we find two glossaries associated to online materials accompanying textbooks for undergraduates: J. Stiglitz and C. E. Walsh, GLOSSARY associated to the 4th ed. of *Principles of Macroeconomics* giving very brief definitions of about 450 terms, and the GLOSSARY complementing John B. Taylor's *Principles of Macroeconomics*, also very briefly defining about 600 terms. The ULTIMATE ECONOMICS GLOSSARY is addressed to candidates applying for an online MBA degree. It also offers very brief definitions of about 100 terms. Slightly longer definitions of about 150 terms are offered by the VIRTUAL ECONOMIC GLOSSARY, maintained by the educational biz/ed. Also educational in purpose are the EURO ECONOMICS DICTIONARY, only very briefly defining 35 terms, the GLOSSARY at Just business aiming at offering "A global and ethical dimension for teachers and students" by briefly defining about 250 terms, and an ECONOMICS-GLOSSARY of 39 very concise definitions of economic terms compiled on the site of fundamentalfinance.com. Two additional one-page glossaries are business oriented: an ECONOMIC GLOSSARY with very brief definitions of about 100 terms (a number of which not strictly economic) is offered by Timetric, a research firm, while an ENVIRONMENTAL ECONOMICS GLOSSARY is found on a site dedicated to environmental damage valuation and cost-benefit analysis. Other glossaries in the same format explain the terms used in some web pages supporting particular views or focused on specific sectorial topics: A GLOSSARY OF TERMS by the People For Mathematically Perfected Economy defines at some length about 50 unusual expressions; an ECONOMIC GLOSSARY on a site called The New Enlightenment briefly defines about 100 more common terms, a GLOSSARY OF ECONOMIC TERMS on the site of United for a fair economy (http://faireconomy.org/news/glossary_of_economic_terms) defines 44 terms.

3.1. Facilitating usage

Such a basic arrangement is naturally only suitable for simple and relatively short glossaries. The spreading of entries over a number of pages requires some help for navigation. A number of dictionaries thus facilitate usage by introducing navigable tables of contents, cross-referencing by

means of hyperlinks, and/or providing search engines. It should be noted that only the latter introduces a conceptual innovation with respect to printed dictionaries: traditional tables of contents and cross-references fulfill exactly the same function in print and online, the latter version being surely faster, while search engines enable the reader to see where the same word (or string of words, or Boolean combination of words) appears anywhere else (texts and entry titles) in the dictionary. Search engines, whether simple or advanced, are seen at once as a substitute of the table of contents and of the subject index: the former is sometimes seen as “a bit old-fashioned” tool¹¹ and is often dispensed with, while I am not aware of any native internet economic dictionary having compiled subject indexes.¹² It should be noted, however, that they are far from equivalent. Browsing a table of contents enables the reader to perceive at a glance related terms with the same root but different ending, which can be easily missed (if one does not try truncated searches) by search engines. Different terms indicating related (or even equivalent) concepts are simply missed by a search engine and should therefore be drawn together in a subject index. These problems can of course be remedied by means of an appropriate system of cross-references to related concepts (about which more in section 3.3 below), which, however, does not dispense from performing searches of multiple equivalent terms if one wants the list of results to be complete.

The simplest addition to the one-page glossaries described above is a navigable table of contents such as the one guiding through the 228 concisely defined terms in Ken Rea’s *GLOSSARY FOR A COURSE IN BASIC ECONOMICS*. The *ECONOMIC GLOSSARY* at Econguru, offering about 2000 brief definitions is both searchable and navigable via a table of contents, while other reference works such as the *GLOSSARY OF ECONOMIC TERMS*, by the Federal Reserve Bank of San Francisco, are only navigable via the search engine or by choosing the page with the initial letter and scrolling it down through the definitions. While the latter system is not too impractical for a small sized dictionary (the latter glossary briefly discusses about 400 terms), it becomes cumbersome for the 2,500 entries (concise as they are) of the *New York Times GLOSSARY OF FINANCIAL AND BUSINESS TERMS* or for the thousand or so entries in *ECONOMICA: AN ILLUSTRATED ENCYCLOPEDIA OF ECONOMICS*, by Ralph Byrne. These dictionaries, however, offer hyperlinks to the definitions of other entries in the word list. Among the other dictionaries only differing from paper reference works by their offer of navigation facilities, cross-references are also used by *ECONOMICS A-Z*, adapted by *The Economists* from *Essential Economics* by their US business editor M. Bishop, with its 600 entries discussed in a slightly more detailed way. The *GLOSSARY OF ECONOMIC TERMS* in EconLinks.com has a table of contents, a search engine and hyperlinked cross-references.

3.2. Enriching content

A second group of innovations made possible by electronic editing and internet environment concerns the content of entries: articles and definitions can be updated when necessary without waiting for a second edition; the format of the entries is not limited to text and a few images but can include multimedia; and it is possible to provide support materials within the site or to refer to external web sites.

The latter is not really a novelty, as links to other internet sites is essentially equivalent to references to literature in print. The advantage lies in the reduction of user cost by saving time (and possibly money) by clicking a link rather than finding the book or article; the drawback lies in the possibility that the link meanwhile expires, the prevention of which requires constant testing of all links either manually or via a software. It is perhaps for this reason that this option is rarely used by online dictionaries of economics. Among the few exceptions of which I am aware, the following are worth citing. The *HYPERTEXT GLOSSARY OF BUSINESS CYCLE INDICATORS* at Nouriel Roubini’s Macro Page lists (not alphabetically) about 40 business cycle indicators. For each of them, it presents a measure of importance, definition, related indicators, source, frequency, availabil-

11 This view is expressed in the introduction to the *Washington Post*’s *GLOSSARY OF BUSINESS TERMS*.

12 Some internet versions of dictionaries in print, however, link to their original subject index: see Section 4 below.

ity, direction relative to the business cycle (procyclical, counter-cyclical, acyclical), timing (coincident, lagging or leading indicator), volatility, likely impact on financial markets (bond prices, stock prices and the exchange rate), ability to affect markets, analysis of the indicator, and links to on-site chapters on the topic and to external web sources (data, charts, graphs and analysis of the indicator). Unfortunately most of the latter links are conspicuous for their having expired. The GLOSSARY OF ECONOMIC TERMS by Mike Moffat, part of the economics page at abut.com, offers brief definitions of about 1,000 terms (some of which borrowed from ECONTERMS, another online dictionary on which more in Section 3.3). Most terms are associated with other materials from the same side, but some also offer references to books or links to JSTOR articles on the theme. RE-THINKING ECONOMICS: 39 KEY CONCEPTS by the Economics web Institute offers in depth discussion of the selected topics, linking them to both external sources and to the numerous essays, news and comments (mainly from the evolutionary economics perspective), posted on their site.

This introduces to the second feature made possible by electronic publishing and the internet: the possibility of linking the definitions to further discussion of the subject to other materials developed elsewhere on the same website. We can easily distinguish four categories. Educational web sites, such as the three glossaries cited in the previous paragraph, use the glossaries to explain the concepts used in their web site but also as a hub for redirecting users to other topics on their sites; glossaries are thus acting in effect as one of the organizing centres of the pages. To this class also belong the ECONOMICS HELP ONLINE DICTIONARY and the EURO ECONOMICS GLOSSARY. The former, on a web site aimed at A-level and college students, offers about 400 entries discussing topics at some length, refers and cross-refers to other articles in the same dictionary, links to on-site essays and revision notes and offers for sale a number of ‘model essays’, revision guides and exam tips. The EURO ECONOMICS DICTIONARY very briefly defines 35 terms for the benefit of teachers and students in high grades and up willing to take part in the Euro Challenge competition; it is developed by UNC’s European Union Center of Excellence. It also links to brief articles discussing in more depth some of the issues, from which the glossary is linked back. Particularly interesting, also belonging to this category, is the GLOSSARY on the Living Economics page. It only offers 190 brief definitions, each of which, however, is linked to one or more articles where some relevant aspects of the theme are discussed.

Among institutional web sites, the GLOSSARY at the Federal Reserve Bank of Minneapolis briefly defines about 300 terms related to the Federal Reserve, banking and economics. It links to pages belonging to their ‘community and education’ and ‘publications’ sections (and to the home pages of some US government Departments or Bureaus they cite). The ECONOMICS GLOSSARY by the OECD Economics Department concisely defines about 200 terms, refers to statistical sources or reports on their site. So does the Eurostat ECONOMICS AND FINANCE GLOSSARY, which explains about 280 terms as they are used in the Eurostat statistics.

One financial dictionary, the FINANCE AND BUSINESS DICTIONARY at QFinance, also links to internal documents its 3000 definitions of terms: the site automatically retrieves and lists, using as keywords the term(s) defined, articles from their blog, keynote articles, relevant key concepts, and ‘checklist’ or ‘best practice’ advice.

The fourth category of dictionaries offering additional materials from their parent web sides consists in newspapers and magazines. They obviously have in their stocks numerous articles likely to be linked to the terms they define, and can therefore automatically retrieve them and link to them from the glossaries pages. This facility is only occasionally used by the GLOSSARY OF FINANCIAL AND ECONOMIC JARGON produced by *The Guardian*, which consists of brief definitions of about 500 words. The FINANCIAL TIMES LEXICON attaches instead to each of its short definitions of thousands of words and phrases a section called ‘FT articles and analysis’ linking to articles from their database, when extant – which could be made even more useful by adding the date when the article was originally published – and offers a search engine of their entire site. However, access requires subscription or at least registration. Similarly, the French DICTIONNAIRE EN LIGNE D’ALTERNATIVES ECONOMIQUES (by far the most complex of the dictionaries examined so far)

systematically links to articles previously published in the magazine *Alternatives économiques*. This service, however, is only available to subscribers or for a fee per view. The dictionary is an augmented and interactive version of a dictionary of economic and social issues by Denis Clerc (1997), the founder of the review. It aims at giving brief definitions as neutral as possible of almost 3,000 terms, which are, however, coupled with a commentary with critical appraisals. Definitions and commentaries are not signed, but supervised by a team of economists and academics. Articles are cross-referred and regularly updated.

This brings us to the third feature made possible by the internet: dictionaries can be quickly and costlessly updated, both by adding to the word list and by updating the definitions of existing terms. Some dictionaries probably update tacitly whenever the need arises, others are keen to emphasize this feature. Among the latter we have *A GLOSSARY OF POLITICAL ECONOMY TERMS* by Dr. Paul M. Johnson, discussing in some depth about 200 terms, and the *GLOSSARY of the Congressional Budget Office*, presented in the form of a pdf document, briefly defining about 200 economic and budgetary terms as they are commonly used in reports by the Congressional Budget Office.

Far more innovative, however, is a fourth feature of which some web-based dictionaries occasionally take advantage, namely, the utilization of means other than simple written texts.¹³ The examples of which I am aware all belong to the ranks of educational dictionaries. The *GLOSSARY OF ECONOMIC TERMS* on the site of PBS teachers briefly defines about 40 terms for pupils aged 6 to 12, ten of which by means of videos. The same format is used by the French *EcoDICO*, which exclusively consists of videos posted by the teaching platform *lewebpedagogique*. The topics of the 59 videos include themes such as ‘Economie chinoise–Mondialisation’ or ‘L’euro en crise’ as well as more strictly economic locutions or terms such as ‘Inflation/déflation’ or ‘taux d’intérêt’. The *EXPANDED GLOSSARY–ECONOMICS* on the site *Quizlet* is also aimed at high school students. It gives brief definitions of about 550 terms, presented as flashcards to be accessed in alphabetical or random order that can be read or listened to. It is associated to various quizzes and games, in particular spelling and guessing the term defined, automatically graded by the software.

3.3. Dictionary architecture

A third group of innovations potentially made possible by the internet and electronic publishing concerns the organization of the information offered by the dictionary and other editorial matters. Yet the existing economic dictionaries seldom take advantage of them.

An important feature of some of the dictionaries that aim at offering more than mere definitions of terms concerns the indication of entries related to the one examined by the reader (as distinct from cross-references to terms used in the text that are explained in a different article), or the grouping of entries within a number of themes. Such things could, of course, be done also on paper encyclopedias, and indeed most internet dictionaries carry noting more than hyperlinks substituting the “see also” list in printed dictionaries. As in the case of cross-references, this does not add anything conceptually new except for readers’ convenience. Among the lexica linking to related entries we have already met Johnson’s *GLOSSARY OF POLITICAL ECONOMY TERMS*, the *Guardian*’s *GLOSSARY OF FINANCIAL AND ECONOMIC JARGON*, the *FINANCIAL TIMES LEXICON*, the *Eurostat ECONOMICS AND FINANCE GLOSSARY*, the *ECONOMICS HELP ONLINE DICTIONARY*. To these we should add *The Washington Post*’s *BUSINESS A TO Z, A GLOSSARY OF BUSINESS TERMS*, which briefly defines more than 1,250 business terms, cross-references and occasionally points to related terms; the *FINANCIAL TERMS DICTIONARY – INVESTMENT TERMS* at *Passion-trading*, very briefly defines about 200 terms, occasionally adding some additional info, and offers links to related terms; and the *ENCYCLOPEDIA WEB-PEDIA* at *AmosWEB*. This reference tool aimed at undergraduates offers a simple yet thoughtful editorial apparatus. It accompanies the *GLOSSARAMA*, also on the same site, which provides definitions of about 2,000 terms. The *WEB-PEDIA* takes up about half of these (they are

¹³ For a recent assessment of the incorporation of multimedia in electronic dictionaries see Lew 2010.

naturally referred to from the GLOSSARAMA), and discusses them at length. Articles can be accessed via an alphabetic list or via the simple and advanced search engines. Each entry carries cross-references, a list of related terms, a further list of concepts providing the necessary background for the contextualization of the entry, links to other entries for further study, and links to relevant external websites. The encyclopedia and the glossary are incorporated in an educational web site also offering instructional materials for introductory micro and macro courses, quizzes, news items concerning the economic and business world, and other materials.

Other dictionaries attempt, not always systematically, thematic groupings of entries. The *Guardian's* CREDIT CRUNCH GLOSSARY for instance, extracts the definitions concerning the credit crunch from the GLOSSARY OF FINANCIAL AND ECONOMIC JARGON, adds another two or three terms, and reassembles them separately. We have also already met the FINANCE AND BUSINESS DICTIONARY at Qfinance: besides the 3,000 or so entries being browsable alphabetically and searchable, they are also grouped in 32 general categories. Some of these are very broad ('economics' and 'statistics', for instance), while those more specifically related to business and finance are more detailed (e.g., 'acquisitions' and 'mergers'). Within each category, entries are listed alphabetically. Terms are most uselessly grouped in categories also in the GLOSSARY OF RESEARCH ECONOMICS, edited by P. B. Meyers in 1997–2005. The glossary very briefly defines over 1,300 terms, that at a first glance can only be accessed via a search engine. There is no alphabetical index. The reader can access all the entries at once, in alphabetical order, only by following (rather anti-intuitively) the 'Downloadable contents' link. Each entry indicates that it belongs to a certain context, which however is not linked to the relevant list of terms; the list of contextual categories, hyperlinked to their contents, can only be accessed by typing 'help' in the search engine. All in all, this is the most user-unfriendly dictionary among those discussed here, although it is one of the two carrying a useful separate bibliography. The other is THE TERMS OF TRADE AND OTHER WONDERS. DEARDORFFS' GLOSSARY OF INTERNATIONAL ECONOMICS, which is instead much better navigable. It is searchable and has an alphabetical list of over 3,700 terms briefly defined (presented on a single page for each letter of the alphabet), and carries hyper-linked cross-references. The origin of the economic usage of some of the concept is discussed in a special page called 'origin' (easily accessible from the menu), which in turn refers to the bibliography. It also carries an illustration of some useful diagrams (to which the corresponding definition of the term does not link), and groups the entries in 30 categories, denoted as 'lists'. Another reference work carrying a similar feature, the FINANCIAL DICTIONARY at Investopedia also offers a relatively complex editorial apparatus, combining several of the features we have seen so far. Its about 13,000 terms are defined and (separately on the same page) briefly explained by Investopedia. Each term has one or more tags, which link to a list of the equally tagged terms, complemented by articles in the same site relating to the tag (the tag 'economics', for instance, is attributed to about 1,300 entries). It should be noted that the tagging system is a dynamic way of connecting entries, as opposed to the manual compilation of DEARDORFFS' GLOSSARY: it enables new terms to be added to the words list while automatically updating also the list of tagged terms. Articles are accompanied by a list of related definitions, a list of articles of interest from the site – sometimes directly related to the term defined, sometimes not –, and occasionally by explanatory videos (see e.g. 'Return on equity').

A particularly interesting and innovative editorial ingredient, made possible by the internet (and by the fact that only a few terms are defined and discussed), is introduced by RETHINKING ECONOMICS: 39 KEY CONCEPTS by the Economics Web Institute (briefly described in Section 3.2). The relationship between about half of the entries in the glossary is organized by a flow diagram representing how the various variables are connected within an IS-LM scheme. Arrows between the 17 variables indicate how each of them influences the others, with a + or – sign for positively and negatively correlated variables. Each node representing a variable is a hyperlink bringing to the corresponding article in the glossary.¹⁴ Curiously this is not explained in the glossary page

¹⁴ <http://www.economicwebinstitute.org/essays/is-lm2.htm0>

and one can only work it out by visiting the IS-LM page, but the glossary's compiler (it seems to be the work of one person only, Valentino Piana, the director of the Economics Web Institute) surely planned the work with an explicit intention of building connections between concepts, as explained in the very brief introduction to the glossary: "To understand multilateral relationships among phenomena as well as among micro and macro-variables, one needs a growing hyper-text connecting ideas".¹⁵

3.4. Readers' interaction

The advent of web 2.0, characterized by the shift towards increased collaboration between end users, would induce one to expect that dictionaries are also open to some form of interaction with readers. Yet this possibility is seldom explored. I am aware of only two dictionaries of economics and related subjects being open to experimentation along this way. Readers of the FINANCIAL TIMES LEXICON can post comments on the lexicon's entries, but some exploratory browsing of potentially controversial entries suggests that readers do not take advantage of this chance. The DICTIONNAIRE EN LIGNE D'ALTERNATIVES ECONOMIQUES invites readers to enrich the definitions given or to suggest new terms and the corresponding definition. The readers' contributions, if judged to be pertinent, are moderated and restyled by a team of economists and professors of economics. Accordingly, it is claimed in the introduction, the dictionary is an interactive tool, in constant evolution, being enriched by the readers' suggestions while retaining accuracy and scholarship.¹⁶ Comments that may have reached the editorial team, however, are not posted on the site and it is therefore not possible to ascertain whether and to which extent readers actually have contributed to the evolution of the dictionary.

3.5. Introductions

The use of most internet dictionaries is rather straightforward and not particularly innovative. Accordingly, only a few dictionaries makers took the trouble of writing an introduction explaining the features of their approach, and when they do they are very concise. Some of these have already been cited above: RETHINKING ECONOMICS: 39 KEY CONCEPTS explains the necessity of hyperlinks; the DICTIONNAIRE EN LIGNE D'ALTERNATIVES ECONOMIQUES (besides the passage cited in section 3.4, they also explain the distinction between neutral definition and commentary: see Section 3.2); and the *Washington Post's* BUSINESS A TO Z, A GLOSSARY OF BUSINESS TERMS (which claims that the entries are 'organized'. There is, however, no explanation of how they are organized and no visible sign of any special arrangement of entries. Two more glossaries carrying an introduction stressed the presence of multimedia among their definitions (the GLOSSARY OF ECONOMICS at PBS teachers: see Section 3.2), and the regular updating of contents (the FINANCE AND BUSINESS DICTIONARY at Qfinance). The non-technical character of the definitions was pointed out in the introductions to two other dictionaries, the GLOSSARY by the Congressional Budget Office and an ONLINE GLOSSARY OF TERMS AND CONCEPTS, originally quickly explaining about 200 terms in J. Stanford's *Economics for Everyone. A short guide to the economics of capitalism* and reproduced on the web as a pdf document. The introduction of the FINANCIAL TERMS DICTIONARY at passion-trading.com explains how their word-list differs from that of traditional dictionaries: "we are not interested in defining single words only; we focus on 'terms' that are generally comprised of two or more words. The advantage of this is that we are able to be much more specific in our definitions and we can index exactly what our users are looking for. One example of this is the word 'limit'. A traditional dictionary would have a listing for that single word but here you will find entries for limit order and limit entry".

All in all, most of the economics dictionaries born on the web or adapted for it are very simple in their structure, and not much different from any paper dictionary. A few incorporate multi-

¹⁵ <http://www.economicwebinstitute.org/concepts.htm>

¹⁶ http://www.alternatives-economiques.fr/Dictionnaire_fr_52_02.html

media, some make use of the possibility of updating contents and wordlists, some usefully complement the dictionaries with other materials on their sides, very few offer the readers the possibility of interacting. The organization of thematic sub-structures within the dictionary is seldom explored and, when it is, it does not substantially differ from what can be done on paper, except for making the navigation more convenient for the reader and sometimes making it more rationally from the lexicographer's point of view. If this underdevelopment of 'encyclopedic' approaches (so to speak) is understandable for small glossaries, some of the dictionaries examined in this section incorporate a fairly large amount of content. Something more in this direction is done by large dictionaries born in a printed format but eventually giving rise to relatively autonomous internet versions – perhaps because the printed product offers, after all, a physical global perspective that is easy to miss in an encyclopedia on the web which can only be visualized article after article.

4. Web spinoffs of printed dictionaries

Some dictionaries originally intended to be published on paper gave rise to spinoffs on the internet.¹⁷ Two are classical works, a few are recent creations posted on the web in a rather plain way, one is also plain from the editorial point of view but very rich in content, while three are more interesting in their effort to provide a systematization of the information contained in their articles.

Of the two classical works, one is not properly an economic dictionary, in spite of being titled *Ökonomisch-technologische Enzyklopädie*. This 242 volumes work, initially edited by Krünitz but completed by others between 1773 and 1858, is one of those practical arts dictionaries that went under such titles in the eighteenth century. It was practically a general encyclopedia, the largest ever published in Western languages. Its interest lies in the solution adopted in the digital edition to contrast the disordered way in which the encyclopedia grew over the decades it took for completion: materials have been reorganized by superimposing to the original entries the Dewey decimal library classification system (Seifert 2007). The second classical work is Lalor's *Cyclopædia of Political Science, Political Economy, and the Political History of the United States*, originally published in 1881–84. The full text of its second edition (1888–90) is reproduced in the Library of economics and liberty. It is searchable, by means of a simple search engine within the book and an advanced search engine covering, however, the entire site, and navigation is aided by an alphabetical table of contents. There is no further editorial intervention.

A few modern economic dictionaries originally published on paper are accompanied by internet editions not offering much beyond some navigation aids. The first edition of the *Encyclopedia of Law and Economics*, edited by Bouckaert and De Geest (2000), is reproduced in pdf format, in separate articles with a navigable table of contents. It offers a search engine of the bibliographic database (articles themselves, however, are not searchable except individually using the browser's engine¹⁸), and links to a Thompson Reuters page of Law and economics resources. The Italian publishing house Simone offers an online dictionary of economics, drawn from De Rosa's *Dizionario di economia politica* (2011). Entries are accessible via a search engine or a browsable index, and are cross-referred. Similarly, OXFORD REFERENCE ONLINE, a subscription service, offers access to a set of its dictionaries, including *A Dictionary of Accounting*, *A Dictionary of Business and Management*, *The Oxford Encyclopedia of Economic History*, *A Dictionary of Economics* (Black 2009), and *A Dictionary of Finance and Banking*. They are also searchable (collectively or individually) or browsable alphabetically and cross-referred, and at each entry they provide links to related terms and to adjacent entries within the same dictionary.

¹⁷ In the references, these dictionaries are classified, and links are given, under 'Dictionaries'.

¹⁸ The menu on the introductory page, however, suggests that there should be a search engine which, however, links to the bibliographical search facility; there is a link to bibliographies which links instead to the contents page. There may therefore be some mistakes in the menu settings that hide some of the properties of the site.

The *New Palgrave dictionary of economics* is in a league of its own. Surely the most impressive and authoritative contemporary dictionary of economics in terms of its contents and authorship, it is mainly addressed to researchers and graduate students. The printed version of the first edition (Eatwell et al. 1987) consists in 4 volumes, the second edition (Durlauf/Blume 2008) consists in 8 volumes. The online version, a subscription service, incorporates both editions, and a number of additions. Indeed the possibility of updating it, together with the references to related articles¹⁹ and the possibility of bookmarking searches are the feature indicated by the editors to qualify it as ‘dynamic’. One, however, regrets that the editorial apparatus does not match in quality the actual contents of the articles. The updating only consists in the quarterly addition of new entries, without however the necessary updating of the references to related articles. For instance, the article on the ‘Greek crisis in perspective’ added early in 2012 refers to the article on the ‘euro zone crisis 2010’, added in 2011, but there is no reference back in spite of Greece being mentioned 23 times in the text. Such a large encyclopedic dictionary would require the possibility of browsing entries by topics, but the only existing grouping is based on the JEL category listing (a system of codes devised in the 1960s to categorize articles listed in the *Journal of Economic Literature*) which are, however, not correctly implemented at entry level (for instance, searching for ‘cycle’ or ‘cycles’ in the title of article of all editions under code E32 (Business fluctuations, cycles) only gives one hit, while at least 20 relevant entries should be classified under this heading. More useful is the list of keywords, each of which acts as a tag enabling to find other entries carrying the same tag (the tagging works by activating the search engine, filtering results to ‘keywords’ only); this, however, only partly substitutes the proper categorization of topics that would turn the dictionary from a mass of well discussed but badly connected articles into a summa of contemporary economic knowledge as a whole.

Other dictionaries have tried to fill the gap between independent, quasi-monographic article and the overall picture. David Henderson’s *Concise encyclopedia of economics* and the dictionaries belonging to the Gale virtual reference library collection did so by means of a traditional tool, the subject index worked out for the editions in print. The *Concise encyclopedia of economics* is the second edition (2008) of the *Fortune encyclopedia of economics*, 1993, and the texts of both editions are reproduced online by the Library of economics and liberty. It can be searched and browsed alphabetically by entry title and by author, and reproduces the subject index of the printed version, page numbers being turned into active links. Moreover, the entries are categorized under 16 headings such as ‘basic concepts’, ‘macroeconomics’, ‘money and banking’, with biographies listed separately. Gale’s Virtual reference library is a subscription service offering searches through a collection of dictionaries and encyclopedias covering nearly 20 subject areas, some of those in social sciences and business being relevant to economics, in particular the two editions of the *International Encyclopedia of the Social Sciences* (the 17 volumes edited by Sills in 1968 and the 9 volumes edited by Darity Jr. in 2008), the second edition (2007) of Kaliski’s *Encyclopedia of Business and Finance* and the 3rd edition of Darnay and Magee’s *Encyclopedia of Small Business*, 2007. The entries are shown in both pdf and text formats, the latter also presenting the references to related entries as hyperlinks and especially listing the entries in the volume’s subject index relevant to the keywords forming the title of the entry.

The dictionary that developed by far the most original bridging between individual entries in order to represent their context is the German *Gabler Wirtschaftslexikon: das Wissen der Experten*, accessible free of charge. Although it started as the 16th edition of a printed dictionary the history of which began in 1956, it has become a fully autonomous entity (the site naturally offers the possibility to buy the 17th edition in print, published in 2010 in 8 volumes for a total of over 3600 pages, by the same editors of the online edition, Mosen and Winter, with added Roberts). It incorporates more than 25,000 entries, discussed at variable length, aimed at undergraduates and at the general public. Its editorial structure is by far the most complex of all dictionaries discussed

19 The ‘about’ page actually says ‘cross-references’, but there is not a system of cross-references from within the text; links depart from the “see also” list of related entries.

so far in this article. It uses features already introduced by other dictionaries, such as the relatively widespread cross-referencing, the rarer linking to related entries, the linking to relevant external websites, the classifying the entry by means of a rather detailed subject categorization,²⁰ and the referring and linking to recent business news on the subject and to relevant literature stored on their web-site (and to Amazon in the case of books published by the same house), which is in turn linked to further literature. Other features are unique. Authors of entries have a dedicated page, with picture, CV, bibliography, field(s) of expertise and current interests, and the site keeps track of the various versions of the articles, all of which can be accessed. The most innovative peculiarity of this dictionary, however, is a graphical representation of the connections between the entry and other articles. It is built starting from the system of cross-references to and from the article under examination: an unspecified algorithm selects the 5 most important entries, and represents them in their connections to the central article by means of incoming, outgoing or bidirectional arrows depending on whether the entry refers to, is referred from, or both refers to and is referred from the central article. Any cross-references between these entries are also represented in a lighter colour. Each node in the graph is a link to the corresponding article. The reader can also examine second-order connections, resulting from the iterated application of the algorithm to the five entries, giving rise to a 26-nodes graph (at most), as illustrated in the images taken starting from the entry on ‘Keynes’.

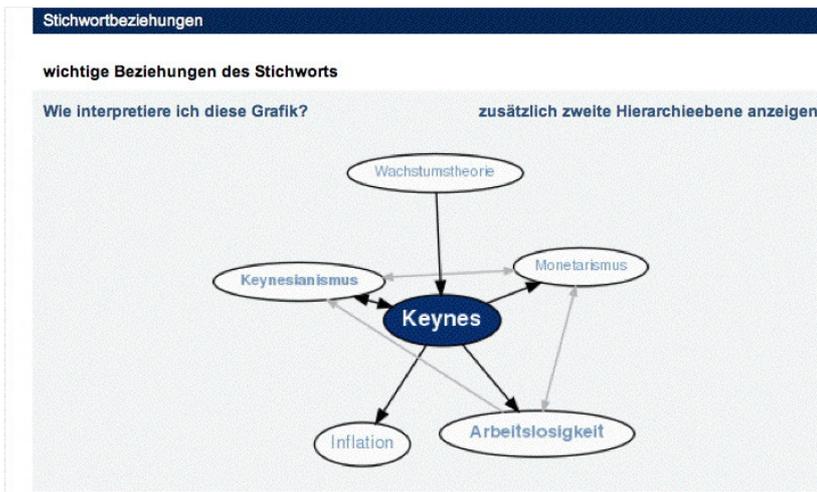


Figure 3. The 5 ‘most important’ entries directly linked to or from the article on ‘Keynes’ in Gabler’s Wirtschaftslexikon

20 The main division is in large fields such as economics, business, economic geography etc.; economics is divided in theory, policy and methodology. Theory is divided into macro, micro, international economics, foundations, and financial economics. Macro in turn is divided into foundations, business cycles, growth, national accounts. The entire categorization can be visualized from the advanced search page <http://wirtschaftslexikon.gabler.de/Detailsuche.jsp>, which gives a navigable tree structure.

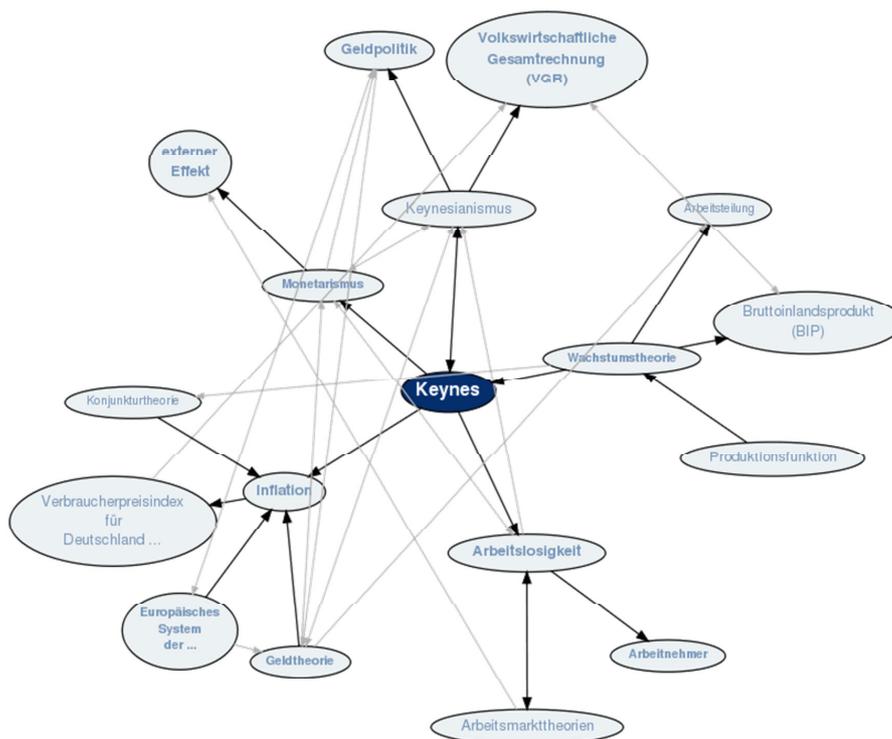


Figure 4. The second-order connections linked to or from the article on ‘Keynes’ in Gabler’s Wirtschaftslexicon

Such graphs do not represent what an informed encyclopedist believes to be the connections between entries (one would expect, for instance, that ‘Keynes’ were linked to ‘uncertainty’ or ‘expectations’ rather than ‘growth theory’), nor explains what kind of connections they are or how strong they are, but illustrate what a machine has found to be the ‘most important’ entries based on the structure of links ‘from below’ (so to speak). Yet this innovation (only possible in electronic lexicography) represents a new way of dealing with the problem of the fractioning of knowledge that has tormented encyclopedists at least since Diderot and D’Alembert (see Besomi 2011c), and is therefore to be welcomed and should stimulate to further thought.

5. Conclusion

Internet and electronic editing completely change the conditions at which dictionaries are produced and distributed, and have a large potential for innovations useful to dictionary-makers. The dramatic drop in the cost of production and storage, for instance, eliminates space constraints, making it possible to expand at will both the number of entries and their length (possibly at the risk of losing the form of structuring consisting in attributing more space to more important entries) and consequently forcing to redefine the organization of the dictionary in order to prevent the reader being swamped by excessive and badly organized information. The macrostructure is also affected by the possibility of regularly updating the list of terms. The microstructural counterpart consists in the possibility of updating the entry’s contents, not only with new text but also by means of multimedia and links to external sources. The web makes it easy to interact with the readers, both in terms of explicit exchanges of views by means of blogs and forums and of tacit measurement of frequency, searches and order of visits. The navigation through dictionaries is enormously facilitated by search engines and hyperlinks, substituting cross-references and references to related entries, browsable table of contents. Some of the new instruments are nothing but extensions of analogous tools already available to dictionaries in print, while a few constitute a

novelty, in particular the interaction with the readers and the usage of multimedia. To the advantage of users,²¹ all these opportunities have been explored by a number of dictionaries, the former group more frequently than the latter.

Electronic lexicography, however, also makes it possible to study and represent the network of connections between the various elements of a dictionary. This possibility has not yet been explored far enough: among economic dictionaries, only *Gabler Wirtschaftslexikon* made an attempt in this direction, entrusting to an algorithm the choice of what is relevant. Yet one could imagine the relevance of nexuses being evaluated by experts in the field, and readers being offered, in the web 2.0 environment, the possibility of experimenting with them. A representation of the connections between pieces of knowledge by means of oriented graphs would thus add new dimensions to the role of encyclopedias: they would no longer only be reference literature representing fragments of knowledge in a more or less self-contained way, but instruments for the analysis of knowledge as a whole and for the exploration of the implications of the recognition of new connections or the changing of previously established ones. In other words, e-lexicography jointly with the internet could turn the encyclopedia into an instrument of inquiry and discovery. Internet and electronic editing provide the technical conditions for such an evolution; this, however, requires that lexicographers are prepared to interpret the encyclopedic adventure in its original etymological sense as ‘cycle of learning’.

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²¹ Some dictionaries are instrumental to the business of the web sites offering them, both in terms of increasing visibility on the web by offering several points of access and in terms of directly selling items related to the entries examined (books or articles produced by a magazine, for instance).

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- BUSINESS A TO Z, A GLOSSARY OF BUSINESS TERMS (*The Washington Post*) = <http://www.washingtonpost.com/wp-srv/business/longterm/glossary/index.htm>
- CREDIT CRUNCH GLOSSARY (*THE GUARDIAN*) = <http://www.guardian.co.uk/business/2008/oct/08/creditchunch.shortselling>
- DICTIONNAIRE EN LIGNE D'ALTERNATIVES ECONOMIQUES (*Alternatives économiques*) = http://www.alternatives-economiques.fr/dictionnaire_fr_52.html
- EcoDICO = http://www.dailymotion.com/playlist/x92ut_lewebpedagogique_ecodico
- ECONOMIC GLOSSARY (Econguru) = <http://glossary.econguru.com/>
- ECONOMIC GLOSSARY (at Timetric) = <http://timetric.com/help/economic-glossary>
- ECONOMICAЕ: AN ILLUSTRATED ENCYCLOPEDIA OF ECONOMICS, by Ralph Byrne = http://www.unc.edu/depts/econ/byrns_web/Economicae/EconomicaeA.htm
- ECONOMICS A-Z (*The Economists*) = <http://www.economist.com/economics-a-to-z>
- ECONOMICS AND FINANCE GLOSSARY (Eurostat) = http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Category:Economy_and_finance_glossary
- ECONOMICS—GLOSSARY (at fundamentalfinance) = <http://economics.fundamentalfinance.com/economicglossary.php>
- ECONOMICS GLOSSARY (OECD Economics Department) = http://www.oecd.org/glossary/0,3414,en_2649_33733_1968510_1_1_1_1,00.html
- ECONOMICS GLOSSARY (at The New Enlightenment) = <http://www.hermes-press.com/econgloss.htm>
- ECONOMICS HELP ONLINE DICTIONARY = <http://www.economicshelp.org/dictionary/index.html>
- ENCYCLOMIC WEB-PEDIA (AmosWEB) = http://www.amosweb.com/cgi-bin/awb_nav.pl?s=wpd
- ENVIRONMENTAL ECONOMICS GLOSSARY = <http://costbenefitanalysis.org/glossary.htm>
- EURO ECONOMICS DICTIONARY: <http://www.unc.edu/depts/europe/euroeconomics/glossary.php>
- EXPANDED GLOSSARY—ECONOMICS (Quizlet) = <http://quizlet.com/2224286/expanded-glossary-economics-ccsd-flash-cards/>
- FINANCE AND BUSINESS DICTIONARY (Qfinance) = <http://www.qfinance.com/dictionary>
- FINANCIAL DICTIONARY at Investopedia = <http://www.investopedia.com/dictionary>
- FINANCIAL TERMS DICTIONARY - INVESTMENT TERMS (Passion-trading) = <http://www.passion-trading.com/dictionary/index.html>
- FINANCIAL TIMES LEXICON = <http://lexicon.ft.com/>
- GLOSSARAMA (AmosWEB) = http://www.amosweb.com/cgi-bin/awb_nav.pl?s=gl
- GLOSSARY (Congressional Budget Office) = <http://www.cbo.gov/sites/default/files/cbofiles/attachments/glossary.pdf>
- GLOSSARY (Federal Reserve Bank of Minneapolis) = (<http://www.minneapolisfed.org/glossary.cfm>)
- GLOSSARY (at Just business) = <http://www.jusbiz.org/glossary.html>
- GLOSSARY (Living Economics) <http://livingeconomics.org/glossary.asp>
- GLOSSARY (J. Stiglitz and C. E. Walsh) = <http://www.wwnorton.com/college/econ/stec4/macroeconomics/glossary.asp>
- GLOSSARY (John B. Taylor) = <http://college.cengage.com/economics/taylor/macro/student/glossary/glossary.html>
- GLOSSARY FOR A COURSE IN BASIC ECONOMICS (Ken Rea) = <http://homes.chass.utoronto.ca/~reak/glosslist.htm>
- GLOSSARY OF ECONOMIC TERMS (Federal Reserve Bank of San Francisco) = <http://www.frbsf.org/tools/glossary/index.html>
- GLOSSARY OF ECONOMIC TERMS (Mike Moffat) <http://economics.about.com/cs/econometrics/l/blglossary.htm>
- GLOSSARY OF ECONOMIC TERMS (PBS teachers) = <http://www.pbs.org/teachers/access-analyze-act-economy/glossary/>
- GLOSSARY OF ECONOMIC TERMS (United for a fair economy) = http://faireconomy.org/news/glossary_of_economic_terms
- GLOSSARY OF FINANCIAL AND BUSINESS TERMS (*New York Times*) = <http://www.nytimes.com/library/financial/glossary/bfglosa.htm>
- GLOSSARY OF FINANCIAL AND ECONOMIC JARGON (*The Guardian*) = <http://www.guardian.co.uk/business/glossaryatoz>
- GLOSSARY OF POLITICAL ECONOMY TERMS (Paul M. Johnson) = <http://www.duc.auburn.edu/~johnspm/gloss/>

²² All these link were accessed in early June 2012.

- GLOSSARY OF RESEARCH ECONOMICS (P. B. Meyers, 1997–2005) = <http://econterms.com>
- HYPERTEXT GLOSSARY OF BUSINESS CYCLE INDICATORS (Nouriel Roubini) = <http://people.stern.nyu.edu/nroubini/bci/bci.html>
- ONLINE GLOSSARY OF TERMS AND CONCEPTS (J. Stanford) = http://www.economicsforeveryone.ca/files/uploads/glossary_0.pdf
- RETHINKING ECONOMICS: 39 KEY CONCEPTS (Economics web Institute) = <http://www.economicswebinstitute.org/concepts.htm>
- THE TERMS OF TRADE AND OTHER WONDERS. DEARDORFFS' GLOSSARY OF INTERNATIONAL ECONOMICS = <http://www-personal.umich.edu/~alandear/glossary/intro.html>
- ULTIMATE ECONOMICS GLOSSARY = <http://www.onlinemba.com/resources/econglossary.html>.
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