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An Economics Academic Word List (EAWL): Using online resources to develop a subject-specific word list and associated teaching-learning materials

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The Academic Word List (AWL) (Coxhead, 2000) is widely used by educators providing Academic Language and Learning (ALL) development in tertiary education settings. The AWL, though, has been criticised for failing to take sufficient account of disciplinary variation, and for relying on the archaic General Service List (West, 1953). This study, therefore, describes the process of using readily available online resources to develop an academic word list that is subject-specific, and based on the New General Service List (Browne, Culligan, & Phillips, 2014). The resulting list, the Economics Academic Word List (EAWL), comprises 887 words (or 1,763 word forms), which cover up to 5.6% of texts both received and produced by university-level economics students. It is argued that, in comparison with generic academic word lists, the EAWL serves as a better reference for developing the academic language of the economics discourse community. This leads to a series of implications and the introduction of a dedicated EAWL website, hosting a range of ready-made teaching-learning materials.

Key Words: EAP, vocabulary, word lists, academic language, academic literacies, corpus linguistics.

1. Introduction

Vocabulary is typically divided into four categories: high-frequency words; academic words; technical words; and low-frequency words (Nation, 2001). While high-frequency words deserve a lot of attention from all learners of English, academic words deserve a lot of attention from those with academic purposes (see Anderson & Freebody, 1981; Cohen, Glasman, Cohen, Ferrara, & Fine, 1988; Farrell, 1990; Li & Pemberton, 1994; Laufer & Nation, 1999; Nation, 2001). For this reason, corpus-derived lists of academic words are widely used by Academic Language and Learning (ALL) practitioners, particularly in English for Academic Purposes (EAP) contexts, to inform course and material design, set vocabulary learning goals, and guide learners in their independent study (Coxhead, 2000, p. 214). The most commonly used of such lists is arguably the Academic Word List (AWL) (Coxhead, 2000).

At the time of its publication, the AWL was commended for being the most consistent and extensive investigation of academic vocabulary, and for filling a substantial gap in language education (Hyland & Tse, 2007; Wang, Liang, & Ge, 2008; Simpson-Vlach & Ellis, 2010). It is derived from Coxhead's 3.5 million word Academic Corpus and is organised around word families. For the purposes of the AWL, 'word family' is defined as a headword plus its inflected forms and

transparent derivations (see Bauer & Nation, 1993). In the AWL, for example, the headword *analyse* subsumes its inflected forms *analyses, analysed, analysing* and its so-called transparent derivations, *analyser, analysers, analysis, analyst, analysts, analytic, analytical* and *analytically*. The AWL comprises 570 word families (or 3,112 word forms) which cover an average of 10% of any academic text, regardless of subject area (Coxhead, 2011).

The AWL has undoubtedly served as a valuable teaching-learning resource, yet it is not entirely problem free. There is, from an academic literacies perspective, a conceptual flaw with the AWL, in that it fails to take sufficient account of disciplinary context. Hyland and Tse (2007), the first to question the usefulness of the AWL, demonstrated that words behave in dissimilar ways in different disciplinary environments in terms of range, collocation, frequency and meaning. Their findings dovetail with research into academic writing, which tends to confirm the existence of disciplinary differences in terms of language features which relate to divergent epistemologies (e.g. Biber, 1988; Hyland, 2000; Charles, 2003; North, 2005; Hyland, 2008; Durrant, 2009; Durrant, 2017). These disciplinary differences concern many language features, including vocabulary, and are particularly evident between so-called *hard* disciplines, in which writing is regarded as a straightforward representation of reality, and so-called *soft* disciplines, in which writing is regarded as more of a rhetorical performance (North, 2005). Yet, the Academic Corpus, from which the AWL is derived, comprises a range of texts from both hard and soft disciplines (e.g. arts, commerce, law and science). The generic AWL, therefore, promotes a model of language development that does not recognise the multiplicity of discourses that are tied to the social practices of individual academic communities, and, as a result, can mislead students by misrepresenting academic literacy as a uniform practice. For this reason, in their evaluation of the AWL, Hyland and Tse (2007) conclude that:

> The best way to prepare students for their studies is not to search for overarching, universally appropriate teaching items, but to provide them with an understanding of the features of the discourses they will encounter in their particular courses. (p. 251)

Their conclusion engages with current conceptions of academic literacies, by acknowledging "the literacy demands of the curriculum as involving a variety of communicative practices, including genres, fields and disciplines" (Lea & Street, 1998, p. 159).

In response to Hyland and Tse's (2007) seminal paper, a number of studies were carried out to produce specialised word lists (e.g. Wang, Liang, & Ge, 2008; Martinez, Beck, & Panza, 2009; Vongpumivitch, Huang, & Chang, 2009; Li & Qian, 2010). These lists provide specific information on aspects of the academic vocabulary of distinct genres and disciplines (Martinez, Beck, & Panza, 2009, p. 193), thus engaging with the academic literacy practices of individual discourse communities. Moreover, they better meet the main objective of word lists, which is to offer learners a list of words they will encounter often so they get the best return for their vocabulary learning effort (Nation & Waring, 1997). However, many of these new specialised lists are also susceptible to criticism, because, like the AWL, they were developed as extensions of the *archaic* General Service List (GSL) (West, 1953).

The GSL is a list of 2000 high-frequency word families that were deemed important for all learners of English. It was the only thorough corpus-based description of high-frequency words at the time when the AWL and the aforementioned specialised word lists were developed (Coxhead, 2000, p. 214; Coxhead, 2011, p. 2). The GSL was, therefore, used as the foundation of the AWL and the subsequent specialised lists, which is to say, GSL items were excluded from occurring in these academic word lists. This is somewhat problematic, though, as the GSL is not representative of contemporary language use. In fact, it is derived from a corpus of texts that were mostly published before the 1930s (Browne, 2014, p. 1). As a consequence, academic word lists which were developed as extensions of the GSL comprise items "that do not appear to belong to academia at all" (Eldridge, 2008, p. 111). For instance, the AWL and the specialised Medical Academic Word

List (MAWL) (Wang, Liang, & Ge, 2008) comprise a number of intuitively high-frequency looking words such as *similar*, *available* and *percent* because they are not in the GSL.

As useful as the GSL has been over the decades, it has now been replaced two-fold by the New General Service List (NGSL1 hereafter) (Browne et al., 2013) and the New General Service List (NGSL2 hereafter) (Brezina & Gablasova, 2013). These new lists of high-frequency words, derived from modern corpora, include intuitively high-frequency looking words such as *similar*, *available* and *percent*, and are free of idiosyncrasies of the 1930s like *shilling* and *headdress* (which can be found in the GSL). The new general service lists are, in other words, representative of modern language use, and thus "form a better foundation … for the subsequent production of the more specialised types of list espoused by Hyland and Tse" (Eldridge, 2008, p.112).

This paper describes the development and evaluation of an Economics Academic Word List (EAWL) – the first economics specific academic word list. This list has been developed in consideration of current conceptions of academic literacies in order to promote a model of language development that is sufficiently nuanced to reflect the vocabulary practices of an individual discipline. Furthermore, it has been developed in light of recent developments in corpus-linguistics and word-list research, specifically the publication of the NGSL1. The paper also introduces a number of ready-made online materials for teaching-learning with the EAWL.

The EAWL and its associated materials will be of particular interest to ALL practitioners, particularly those tasked with embedding academic literacies in the mainstream curricula of academic departments, or those concerned with English for Specific Academic Purposes (ESAP).

2. Methods

This section outlines the quantitative and qualitative methods by which the EAWL was developed. These methods are subsumed under four stages: (2.1) designing and compiling the corpora; (2.2) quantitative analysis of the corpus; (2.3) qualitative refinement of the list; and (2.4) organising the final entries.

2.1. Designing and compiling the corpora

Two corpora were compiled for the purposes of this study: a target corpus and a validation corpus.

2.1.1. Target corpus (Economics_OAJ)

The target corpus, referred to hereafter as the Economics_OAJ, is a collection of 4,545 open-access economics journal articles comprising 20,667,057 words (Table 1**)**. It is a subcorpus of the publicly available Open Access Journals (OAJ) corpus. The 2.6 billion word OAJ corpus comprises journals covering science, technology, medicine, social science and humanities (Sketch Engine, 2018)[1]. Within the OAJ corpus, using the Sketch Engine's subject categories, it is possible to compile and search highly specialised subcorpora, ranging from gynaecology to economics[2]. The OAJ corpus is relatively new to the Sketch Engine and offers students, teachers and researchers a straightforward method by which to create subject-specific corpora comprising millions of words with just a few mouse clicks.

The Economics_OAJ is a highly suitable target corpus for the present study for two key reasons. Firstly, the Economics_OAJ is comprised of journal articles. This genre plays a key role in disciplinary construction (North, 2005, p. 520), and is often the target of good research writing which students are encouraged to emulate (Hyland, 2008, p. 47). Second, the Economics_OAJ provides

[1] More information available here: https://www.sketchengine.eu/doaj_corpus/

[2] Instructions for compiling and searching specialised subcorpora using the Sketch Engine: https://www.sketchengine.eu/user-guide/user-manual/corpora/create-a-subcorpus/

a very large language sample which is desirable for a corpus study, such as this one, with a focus on lexical items. As Krishnamurthy (2000, p. 175) points out, "large corpora are needed […] to analyse rarer items, and to detect the finer details of language use". That is to say, studies with a focus on lexical items, for example academic words, require a large corpus because corpus size is a direct function of lexical item frequency and "you need several examples before you can start to detect any pattern of use" (Krishnamurthy, 2000, p. 175). Compiling a multi-million word purpose-made corpus of economics texts would be beyond the constraints of the present study and, for that matter, most teaching contexts. Using a specialised subcorpus of the ready-made OAJ corpus, on the other hand, is extremely quick and easy. It could, though, be described as an *opportunistic* approach to corpus design and compilation. For this reason, a second corpus was carefully compiled for the purpose of validating the results from the Economics_OAJ.

Table 1. Size of the Economics_OAJ corpus.

	Number of texts	Number of words
Total	4,545	20,667,057

2.1.2. Validation corpus (EcoCorpus)

The validation corpus, referred to hereafter as the EcoCorpus, is a purpose-built 725,158 word collection of 40 open-access economics journal articles; 40 masters level economics dissertations; and 40 masters level economics exam papers (questions only) (Table 2). The EcoCorpus was designed, as per the suggestion of Hyland and Tse (2007, p. 5), to systematically represent a range of key genres, both received and produced by university-level [economics] students, with equal numbers of texts in each genre. The three genres (journal articles, dissertations and exam papers) were chosen based on an interview with the Postgraduate Teaching and Learning Manager in the Department of Economics at the University of Warwick. The journal articles were collected from the Economics E-Journal[3], while the dissertations and exam papers were collected from the University of Warwick's research repository.

The EcoCorpus is divided into three subcorpora, each of which represents a key genre: EcoJournals, EcoDissertations and EcoExams. The EcoCorpus will be used solely for validating the final Economics Academic Word List (EAWL). The validation of the EAWL using the EcoCorpus is based on Coxhead's (2000, p. 224) suggestion that the real test of any word list is how it covers a different collection of similar texts, that is, how it covers a corpus from which it was not derived.

Table 2. Size of the EcoCorpus corpus.

	Number of texts	Number of words
EcoDissertation	40	~311,005*
EcoJournal	40	~378,274*
EcoExam	40	~35,878*
Total	**120**	**725,158**

* Subcorpus word counts are provided by the Sketch Engine as approximations.

2.2. Quantitative analysis of the Economics_OAJ corpus

A quantitative analysis of the target corpus was carried out using the Sketch Engine's Word List tool (Figure 1), "a powerful tool capable of generating many types of lists" (Thomas, 2017, p.

[3] Available here: www.economics-ejournal.org

196). For the purposes of this computational analysis, a list of 'words' was generated (Figure 1). In the Sketch Engine, 'words' refers to the individual forms lemmas can take, meaning, for example, that different forms of the lemma *go*, such as *went* and *going*, are treated as separate 'words' (Sketch Engine, 2019). In order to identify *academic* words, two criteria were applied using the Word List tool. They were: (3.2.1) specialised occurrence; and (3.2.2) frequency.[4]

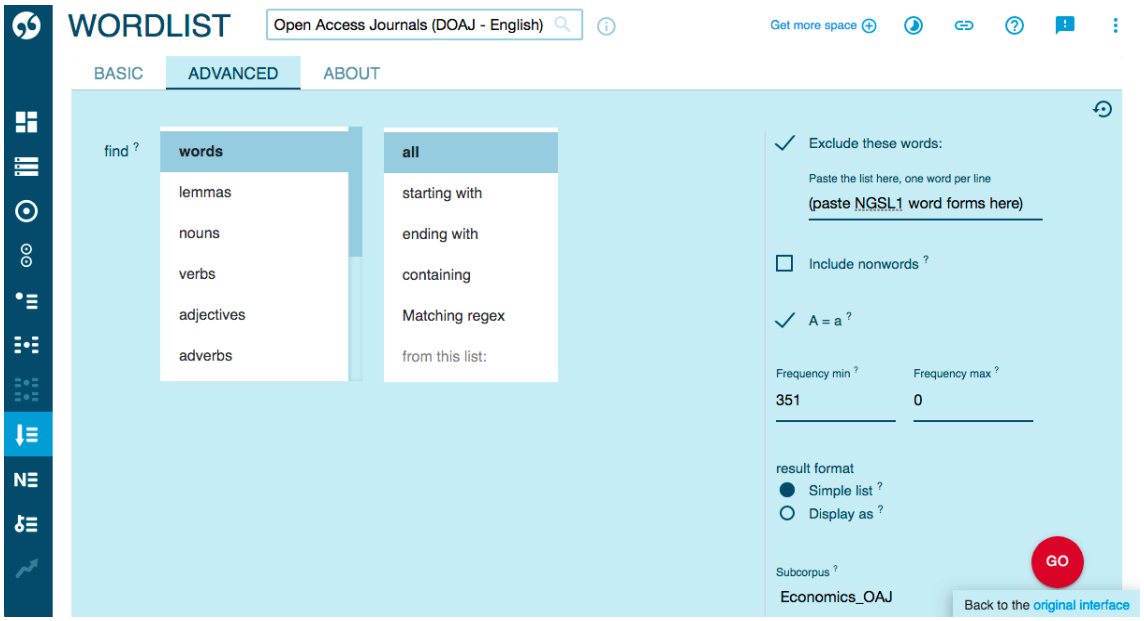

Figure 1. The Sketch Engine's Word List Tool (Sketch Engine, 2019).

2.2.1. Specialised Occurrence

For an occurrence of a word to be deemed specialised, it had to be outside of the high-frequency words of English, as represented by *one* of the *two* new general service lists: the NGSL1 *or* NGSL2. The NGSL1 (Browne et al., 2013) is somewhat different to the NGSL2 (Brezina & Gablasova, 2013) in that it boasts a dedicated website hosting a range of free teaching and learning resources, materials and, most appositely, researcher-friendly downloadable versions of the list. Unlike the NGSL2, the focus of the NGSL1 project was clearly "creating a list of high-frequency words that was as useful as possible for students, teachers and researchers around the world" (Browne, 2014, p. 9). For this reason, the NGSL1 was chosen to represent the high-frequency words of English in the present study.

The NGSL1 (2,801 headwords / 8,481 word forms) and the NGSL1 supplemental (82 headwords / 174 word forms)[5] were downloaded as .txt files[6] and combined to create an NGSL1 comprising a total of 8,655 word forms. This list was then used in the Word List tool as a *blacklist*, that is, a closed set of items to be excluded from the frequency list (Sketch Engine, 2018) (Figure 1). In other words, using the NGSL1 as a blacklist excludes high-frequency words from analysis and, by extension, the EAWL (in the same way that GSL words were excluded from the AWL).

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[4] Word list analyses typically apply a third criterion - dispersion. This analysis, however, does not apply a dispersion threshold because the Economics_OAJ corpus, from which the EAWL is derived, consists of texts from only one subject area (economics) and one genre (research articles). Although a dispersion threshold is not set, the dispersion of EAWL items across the three subcorpora of the EcoCorpus is examined in the results and discussion section.

[5] The NGSL1 supplemental word list contains only days of the week, months of the year and numbers.

[6] NGSL .txt files available to download here: http://www.laurenceanthony.net/software/antwordprofiler/

A search of Economics_OAJ with the NGSL1 set as a blacklist yields a list of 173,665 word forms. This list represents academic words, technical words and low-frequency words (i.e. all word categories except high-frequency words). In order to filter out technical words and low-frequency words, which are not the focus of this study, a frequency criterion was applied.

2.2.2. Frequency

The threshold at which a word could be considered suitably frequent was set at 351. This minimum frequency threshold was calculated by approximating the mean for all academic words in the Economics_OAJ using an existing academic word list, the New Academic Word List (Browne et al., 2013). This generic academic word list, derived from an academic corpus of 288 million words, comprises 960 words (or 2,606 word forms) which cover up to 6% of academic texts (Browne et al., 2013). The NAWL was used for this calculation because it was developed to work in conjunction with the NGSL1 (the blacklist) in the same way that Coxhead's AWL works in conjunction with original GSL. The AWL could not be used to make the frequency calculation in the present study because it overlaps with the NGSL1 (the blacklist).[7] Any overlap between the blacklist and the list used to represent academic words would produce an unreliable frequency threshold.

The mean for all academic words, as represented by the NAWL, in the Economics_OAJ is 351. This mean was calculated as the total frequency of NAWL word forms in the Economics_OAJ (720,970) divided by the number of NAWL word forms occurring in the Economics_OAJ (2,052). As a frequency threshold in a 20-million-word corpus, this number may seem somewhat low. Hyland and Tse (2007), for example, used a similar calculation in their study to arrive at a frequency threshold of 597 in a 3.2-million-word corpus. However, two important distinctions between their study and the present study should be made. First, Hyland and Tse based their calculation on the AWL, which, on average, covers far more of an academic text than the NAWL. Second, their calculation is concerned with word families, whereas the present calculation is concerned with word forms. For these reasons, the two vastly different frequency thresholds cannot be directly compared.

With the NGSL1 set as a blacklist and the minimum frequency threshold set at 351, a search using the Sketch Engine's Word List tool yielded a list of 1,375 word forms. The frequency threshold reduced the search results from 173,665 word forms to just 1,375. This list now broadly represented academic vocabulary, though it still required further refinement and organisation in ways which will be discussed next.

2.3. Qualitative refinement of the list

The qualitative refinement process involved examining and manually removing "noise" from the list of 1,375 word forms. Noise was defined as non-words (e.g. *versa*), single characters (e.g. *x, y* and *z*), abbreviations (e.g. *GDP*), possessives (e.g. *company's*) and proper nouns (e.g. *China*). This qualitative process removed 364 word forms from the list, but it also highlighted three issues: (3.3.1) the inclusion of hyphenations; (3.3.2) intuitively high-frequency looking words not in the NGSL1 .txt file; and (3.3.3) the need to distinguish between academic and technical vocabulary.

2.3.1. Inclusion of hyphenations

Hyphenations (e.g. *cross-border*) are not typically included in word lists. For the purposes of compiling the EAWL, however, certain allowances were made. This is because the pedagogical principle behind the EAWL is that corpus analysis is the best way of seeking the most relevant and useful vocabulary to teach students. Therefore, if certain hyphenations occur frequently in an

[7] Out of the 3,112 word forms in the AWL, 1,402 are common to the NGSL1.

economics corpus, it would be against the pedagogical principle of the EAWL to preclude them. For example, *cross-border* and *e-government* occur in the Economics_OAJ with frequencies of 685 and 497 respectively, and, moreover, are listed independently in either Google Dictionary (*cross-border*) or Wikipedia (*e-government*). For these reasons, it was decided that frequently occurring hyphenations with independent listings in Google Dictionary or Wikipedia would not be removed from the list.

2.3.2. Intuitively high-frequency looking words not in the NGSL1 .txt file

The word forms *better* and *best,* which both look intuitively high-frequency, are not in the NGSL1 .txt file.[8] Rather than *good, better* and *best,* the NGSL1 .txt file records *good* and *goodest*. This could perhaps be because *better* and *best* have their own inflections (e.g. *betters, bettered, bettering, bests, bested* and *besting),* but nor do these appear in the NGSL1 .txt file. It is hard to believe that *better* and *best* did not meet the frequency criteria for inclusion in the NGSL1. *Better,* for example, occurs 34,780 times in the British National Corpus (BNC), while *ability,* which is in the NGSL1, occurs only 9,067 times. Because *better* and *best* are not in the NGSL1 .txt file (the blacklist), they were not filtered by the Word List tool during the quantitative analysis. So, as part of the qualitative refinement process, the researcher initially removed these words manually as they are clearly not academic. Yet, this meant that neither *better* nor *best* were accounted for by the NGSL1 or EAWL, which would produce skewed results later when calculating their combined coverage of a corpus. Therefore, because the EAWL was developed as an extension of the NGSL1, *better* and *best* remain in the EAWL.

2.3.3. Distinguishing between academic and technical vocabulary

The distinction between *academic words* and *technical words* is that academic words occur across a range of disciplines and genres, whereas technical words typically occur in just one sub-discipline or sub-genre. Academic words are therefore less likely to be glossed by a teacher than technical words (Flowerdew, 1993, p. 236). For example, in an econometrics lecture, the lecturer is unlikely to gloss the word *correlation* as it occurs in a range of economics related sub-disciplines (e.g. microeconomics, macroeconomics and econometrics) and so it might be (incorrectly) assumed that economics students in tertiary education are familiar with this word. In contrast, a word that might only occur in econometrics discourse, for example *endogeneity* (used to describe the presence of an endogenous explanatory variable), is more likely to be glossed by the lecturer. Thus, although technical words are central to learners' specialised interests, academic words are arguably a more challenging aspect of students' academic language learning (Hyland & Tse, 2007, p. 236).

In relation to the distinction between academic and technical words, there were a number of entries on the present list which, to the researcher (who is not an economics specialist), appeared to be intuitively technical, rather than academic. This is perhaps not surprising as "academic vocabulary is a class of words between technical and non-technical vocabulary and usually with technical as well as non-technical implications" (Wang, Liang, & Ge, 2008, p. 451). For example, to a layman, words such as *cointegreation, externality* and *stochastic* may have technical implications, whereas to a member of the economics discourse community they may have non-technical implications. As discussed above, words can be deemed academic, rather than technical, only if they are used across a range of [economics] disciplines and genres, that is, not in just one sub-discipline or sub-genre [of economics] (Wang, Liang, & Ge, 2008, p. 451).

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[8] The NGSL1 .txt files were downloaded using a link provided by the official NGSL website. The NGSL 1.01 Version, which is available to download directly from the official website, also records *goodest* as the only inflectional variation of *good*.

To ascertain whether intuitively technical seeming words on the present list (e.g. *cointegration*, *externality* and *stochastic*) occurred in range of economics genres, they were independently searched in the EcoCorpus. If they did not occur in a range of genres, they could potentially be deemed technical, rather than academic, and therefore would need to be removed as noise because technical words are not the focus of this study. However, the independent searches in the Eco-Corpus revealed that these intuitively technical looking words in fact occurred in multiple texts (by different authors) and multiple genres (journal articles, dissertation and exam papers), and can therefore be considered academic, rather than technical.

2.4. Organising the final entries

After the qualitative refinement process, there were 1,011 word forms remaining that needed organising in a systematic and user-friendly manner. As previously mentioned, the GSL and AWL are both organised around word families, which assumes that "once the base word or even a derived word is known, the recognition of other members of the family requires little or no extra effort" (Bauer & Nation, 1993, p. 253). However, Brezina and Gablasova (2013, p. 4) argue that this organisational principle relies heavily on the learners' morphological skills, which may or may not be at an adequate level (see also Schmitt & Zimmerman, 2002). Furthermore, Browne et al. (2013) suggest that from the perspective of the list compiler, using word families adds a level of subjectivity that can lead to differentiation, particularly in relation to defining what constitutes a *transparent* derivation (see also Gardner, 2007).

In consideration of these arguments, the EAWL is organised around Browne's (2014, p. 6) 'modified lexeme approach'. By this approach a 'word' is defined as the headword along with its inflected forms in all their various parts of speech (POS). For example, the headword *authorize* subsumes the inflections *authorizes*, *authorized* and *authorizing* (along with their respective UK spellings) as both verb and adjective, but does *not* include any derivations (e.g. *authorisation*).[9] The NGSL1 is also organised around modified lexemes, thus there is no overlap between the NGSL1 and the EAWL (in the same way that there is no overlap between the GSL and AWL).

After organising the 1,011 word forms using the modified lexeme approach, the final list contains 887 words, that is, 887 headwords along with their inflected forms (or 1,763 word forms in total) (Appendix 1). The total number of word forms is increased from 1,011 to 1,763 as a result of inflection expansion. For example, the word form *compensate* met the frequency criteria for inclusion (raw frequency 376), therefore its inflections *compensates*, *compensated* and *compensating* were added to the list, as per the modified lexeme approach.

In the final EAWL, each word is listed as the headword followed by its inflections, along with frequency data (frequency of the most frequently occurring word form [freq. 1] and frequency of the headword and its inflections [freq. 2]) (Table 3).

Table 3. Example of a word in the final EAWL.

Headword	Inflections			Freq. 1	Freq. 2
compensate	compensates	compensated	compensating	**376**	871

3. Results and discussion

The EAWL's 887 words occur in the Economics_OAJ with a raw frequency of 1,144,435 (Table 4). Each word, then, occurs an average of 1,256 times. This is an impressive figure, especially when compared to the average occurrence rate of 751 for an NAWL word in the Economics_OAJ.

[9] In the present study, decisions regarding inflections, POS and spellings were informed by Google Dictionary.

Put another way, an EAWL word occurs almost twice as frequently as an NAWL word in the target corpus.[10]

Table 4. EAWL coverage of the Economics_OAJ.

	Economics_OAJ (20,667,057 words)
EAWL items raw frequency	1,144,435
Coverage	5.5%

In terms of text coverage, the EAWL covers 5.5% of the Economics_OAJ **(**Table 4**)**, which, if compared to the AWL's 13.8%, might seem unimpressive. However, when combined coverage is taken into account, the efficacy of the EAWL becomes apparent. Figure 3 shows the combined coverage of the Economics_OAJ by various word lists: the GSL & AWL; the NGSL1 & NAWL; and the NGSL1 & EAWL.

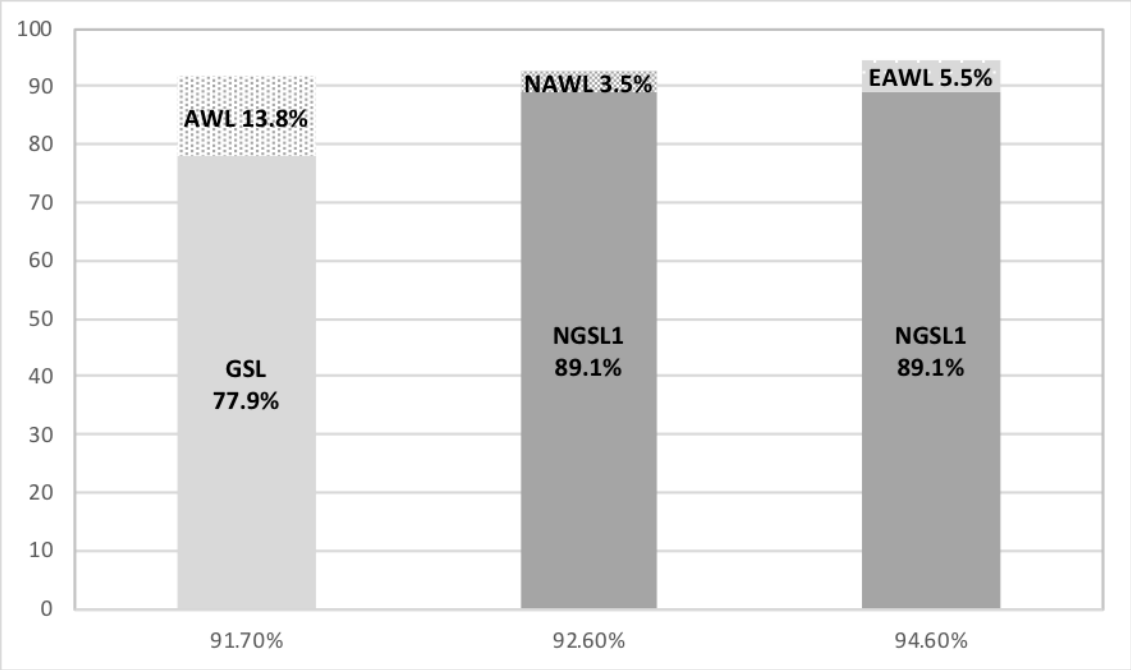

Figure 3. Combined coverage of the Economics_OAJ corpus.

The NGSL1 and EAWL contain the fewest word forms (10,418 words forms in total) *and* offer the highest coverage of the Ecomomics_OAJ at approximately 95%. According to Laufer (1988), if a learner has reached 95% text coverage (i.e. they can understand 95% of the running words in a text) they will likely be able to read and reasonably comprehend a text. This suggests that if a learner mastered the NGSL1 and EAWL, they should be able to read and reasonably comprehend an economics text (or, at the very least, an economics journal).

[10] The same comparison cannot accurately be made with the AWL because: (1) the AWL is based on the GSL rather than the NGSL; and (2) the AWL is organised around word families rather than modified lexemes.

Figure 4 provides an example of EAWL items in the context of a journal abstract. The NGSL1 and EAWL cover 97.4% of the abstract (90.8% and 6.6% respectively), which is comfortably above Laufer's (1988) 95% known comprehension threshold. However, as Coxhead (2000, p. 224) suggests, "a frequency-based word list that is derived from a particular corpus should be expected to cover that corpus well". That is to say, it is perhaps not surprising that the EAWL covers journal articles well because it is derived from a corpus of such texts (Economics_OAJ). Therefore, the EAWL was validated using the EcoCorpus, which represents a range of key genres, both received and produced by university-level economics students (dissertations, journal articles and exam papers).

> Over the past 15 years there has been remarkable progress in the specification and estimation of dynamic stochastic general equilibrium (DSGE) models. Central banks in developed and emerging market economies have become increasingly interested in their usefulness for policy analysis and forecasting. This paper reviews some issues and challenges surrounding the use of these models at central banks. It recognises that they offer coherent frameworks for structuring policy discussions. Nonetheless, they are not ready to accomplish all that is being asked of them. First, they still need to incorporate relevant transmission mechanisms or sectors of the economy; second, issues remain on how to empirically validate them; and finally, challenges remain on how to effectively communicate their features and implications to policy makers and to the public. Overall, at their current stage DSGE models have important limitations. How much of a problem this is will depend on their specific use at central banks. (Tovar, 2009)

Figure 4. EAWL items underlined in context.

The validation study highlights an almost astounding level of uniformity in terms of academic vocabulary across economics texts. The EAWL covers 5.6% of the EcoCorpus (Table 5)[11], which is almost exactly equal to the coverage it offers the Economics_OAJ (5.5%). Most strikingly, though, the EAWL covers 5.4% and 5.9% of the EcoJournal and EcoDissertation subcorpora, respectively (Table 5). This shows there is a high level of uniformity in terms of academic vocabulary usage between texts both received (journals) and produced (dissertations) by university-level economics students. These coverage figures demonstrate the EAWL's potential usefulness as a teaching-learning resource.

An important caveat that should be noted, though, is that only 4.4% of the EcoExam subcorpus is covered (Table 5). This inconsistency could be caused by two factors. First, the EcoExam subcorpus provides too small of a language sample to reliably detect any pattern of vocabulary use in exam papers. Second, because economics exam papers are extremely mathematically-oriented, they do not exhibit the same vocabulary features as other economics texts (e.g. the single characters *b*, *c*, *d*, *e*, *x* and *y* comprise a huge 2.6% of the EcoExams subcorpus).

Table 5. EAWL coverage of the EcoCorpus.

	EcoDiss ~311,005 words*	EcoJournals ~378,274 words*	EcoExams ~35,878 words*	**EcoCorpus 725,158**
EAWL word forms raw frequency	18,344	20,531	1,588	**40,463**
Coverage	5.9%	5.4%	4.4%	**5.6%**

* Subcorpus word counts are provided by the Sketch Engine as approximations.

[11] In comparison, the NAWL covers 3.8% of the EcoCorpus. The AWL coverage of the EcoCorpus cannot be accurately compared to the EAWL's coverage because, as discussed, it is based on the GSL and therefore contains many high-frequency items (e.g. *available*, *percent* and *similar*) which are excluded from the EAWL.

The dispersion of EAWL items across the three genres of economics texts in the EcoCorpus was also investigated. Of the EAWL's 887 words, only 753, 788 and 309 occur at least once in the EcoDiss, EcoJournals and EcoExams subcorpora, respectively. This result is somewhat disappointing as it would be expected that in at least two of the three subcorpora closer to all 887 words would occur at least once. Although this result could, again, be explained by the relatively small language samples provided by the EcoCorpus subcorpora, it could reasonably be argued that the EAWL, like other word lists, would have benefitted from a dispersion threshold.

Dispersion thresholds typically ensure that words on a list are not attributable to the idiosyncrasies of a particular subject area or genre. A dispersion threshold was not applied in the present study because the Economics_OAJ corpus, from which the EAWL derives, consists of texts from only one subject area (economics) and one genre (research articles). Theoretically, a dispersion threshold could have been used in the present study to ensure that the words on the EAWL were not attributable to the idiosyncrasies of a particular journal. For example, the EAWL word *target-cost* occurs 663 times in the Economics_OAJ, but does not occur at all in the EcoCorpus. Closer examination reveals that all 663 occurrences in the Economics_OAJ are exclusively in one particular journal (Annals of the University of Petrosani: Economics)[12]. Therefore, had a dispersion threshold been applied to ensure that EAWL words were not attributable to the idiosyncrasies of a particular journal, *target-cost* would have been filtered from the final list. It is not, however, possible to apply an automated dispersion threshold of this sort using the preloaded OAJ corpus in the Sketch Engine. This could be considered one of the disadvantages of using a subcorpus of the ready-made OAJ corpus for compiling academic word lists.

4. Implications and conclusions

Only 354 words are common to both the EAWL and the generic NAWL. That is to say, there are over 600 words on the NAWL that, as per the criteria of the present study, would not qualify as economics academic words.[13] The findings of the present study, therefore, add to the mounting evidence to suggest that generic academic word lists (e.g. the AWL and NAWL) can mislead students by not providing a sufficiently nuanced account of the academic vocabulary of their discourse community.

In contrast with generic academic word lists, the EAWL acknowledges that vocabulary occurs and behaves in different ways in different disciplinary environments, thus engaging with current conceptions of academic literacies. For this reason, educators providing Academic Language and Learning (ALL) development to economics students in tertiary education settings will likely be better served by the EAWL than a generic academic word list. This is because, as Murray (2016) states:

> Through understanding the particular academic demands faced by students operating in distinctive disciplinary contexts, teachers are able to research appropriate materials and produce lessons that are relevant and engaging, and which therefore promote learning most effectively. (p. 3)

For ALL practitioners concerned with the teaching of economics students, the EAWL provides the means to design and select the most relevant teaching materials, establish vocabulary goals and target academic language instruction more specifically (Hyland & Tse, 2007, p. 251). For

[12] Although *target-cost* occurs in only one journal (Annals of the University of Petrosani: Economics), it in fact occurs in 23 different articles in that journal. Thus, it may be an idiosyncrasy of the journal, but it is not an idiosyncrasy of one particular writer.

[13] The EAWL and the AWL cannot accurately be compared in this way because: (1) the AWL is based on the GSL rather than the NGSL; and (2) the AWL is organised around word families rather than modified lexemes.

economics students, the EAWL provides direct access to the most frequent academic words of their discourse community, which will allow them to focus and conduct independent learning activities.

To facilitate the explicit teaching and learning of the EAWL, a dedicated website has been created to host purpose-made interactive materials (available here). Currently, the website hosts an EAWL Quizzer and EAWL Word Finder. The EAWL Quizzer, made using Quizlet, is based on the 100 most frequent EAWL words (Appendix 2). It uses definitions from Google Dictionary and, importantly, example sentences from the Economics_OAJ. The EAWL Quizzer enables students to study EAWL words through a variety of games and activities and then to test themselves (Figure 5). This tool will be extremely useful for students wishing to conduct independent vocabulary learning activities.

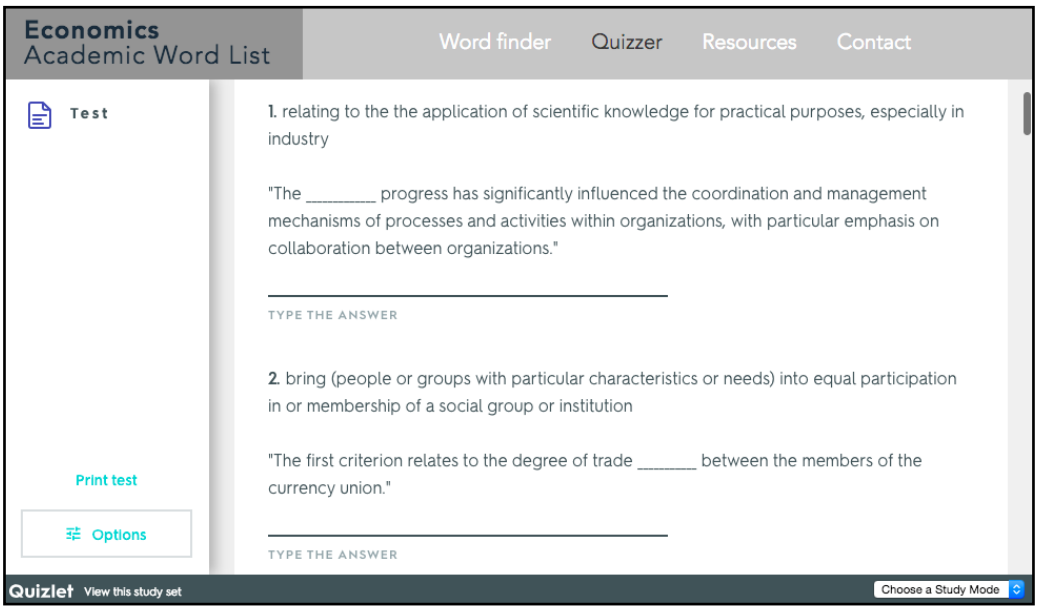

Figure 5. EAWL Quizzer (test mode).

The Word Finder, made using the free and user-friendly online content creator H5P, allows teachers and students to quickly and easily identify EAWL words (along with their POS information) in any text (Figure 6). Reading texts or listening texts (tape scripts), for example, can be pasted into the Word Finder to reveal the most important and useful academic words for economics students. This is extremely useful for teachers attempting to select teaching materials, set vocabulary learning goals and target academic language instruction more specifically.

The explicit teaching-learning of EAWL items with the aforementioned materials will need to be mixed with opportunities for the vocabulary to be met in message focused reading and listening and used in speaking and writing (Coxhead, 2000, p. 228). This mixed approach, a compromise between explicit teaching and implicit learning, may significantly contribute to the acquisition of this subject-specific set of academic vocabulary (Wang et al., 2008).

For the majority of ALL practitioners, i.e. those who are not providing academic language and learning development to economics students, this paper provides an easily replicable methodology for the production of other specialised academic word lists. Using accessible online resources, namely the Sketch Engine, the OAJ corpus and the NGSL1, teachers and material designers can, in a reasonable amount of time, compile a specialised multi-million word corpus and then create a discipline-specific pedagogically-useful list of academic words. In fact, students themselves could, with the right guidance, be encouraged to create their own specialised corpora and word lists using the resources mentioned in this paper.

Although the EAWL and its associated materials offer a more specific approach to the teaching-learning of academic vocabulary, they are not without their limitations. One limitation is that a number of high-frequency words which can also serve important academic functions are not included in the EAWL because they are in the NGSL1. For example, *show*, *find* and *report*, which serve the same rhetorical function of reporting research but different pragmatic functions, are not in the EAWL because they are in the NGSL1 (Martinez, Beck and Panza 2009, p.192). High-frequency words serving important pragmatic functions in academic prose could, then, be overlooked by an exclusive focus on the EAWL. Another limitation is that the EAWL disregards the collocational behaviour of words. For example, the EAWL does not contain the words *adopt* or *approach* because they are in the NGSL1. Yet, the collocation *adopt* (*an) approach* occurs 10,950 times in the Economics_OAJ. Academic collocations could, therefore, also be overlooked by an exclusive focus on the EAWL. These limitations, though, are not unique to the EAWL. They are, more broadly speaking, limitations that should be borne in mind when using word lists in general.

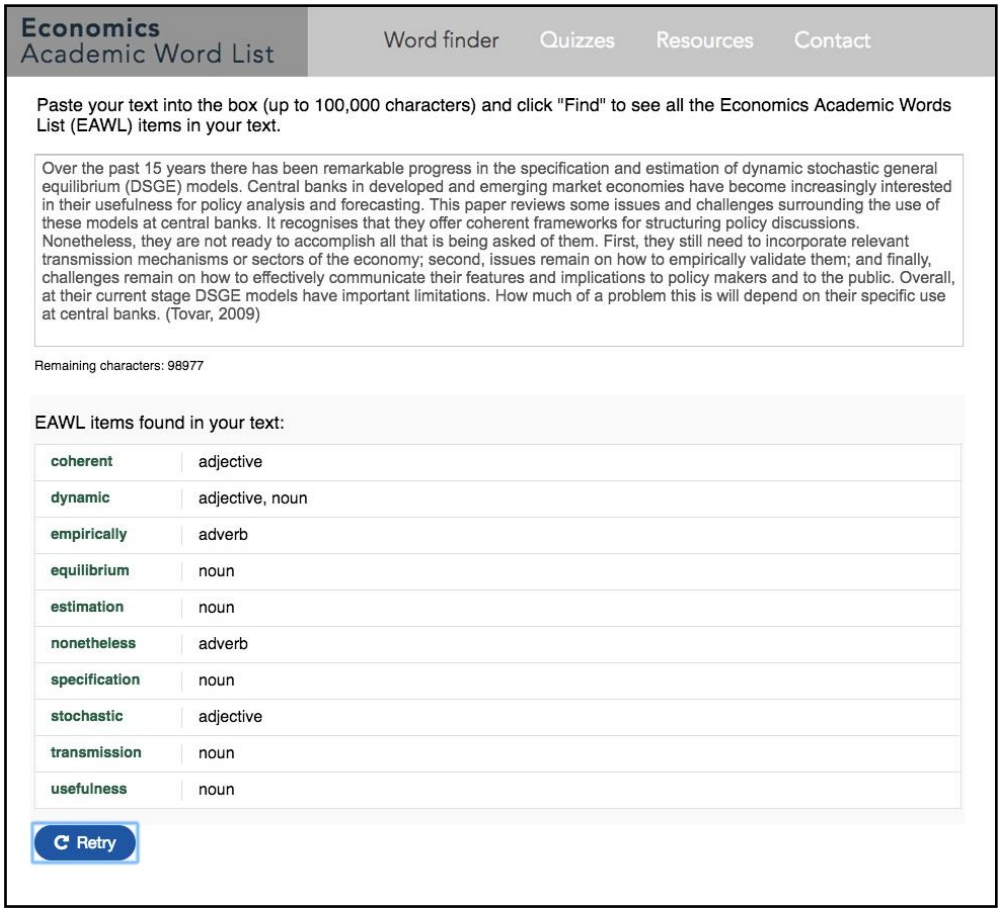

Figure 6. EAWL Word Finder.

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References

Bauer, L., & Nation, I. S. P. (1993). Word Families. *International Journal of Lexicography*, *6*(4), 253-279

Biber, D. (1988). *Variation across speech and writing*. Cambridge: Cambridge University Press.

Brezina, V., & Gablasova, D. (2013). Is There a Core General Vocabulary? Introducing the New General Service List. *Applied Linguistics*, *36*(1), 1–22.

Browne, C. (2014). A New General Service List: The Better Mousetrap We've Been Looking For? *Vocabulary Learning and Instruction*, *3*(1), 1–10.

Browne, C., Culligan, B., & Phillips, J. (2013) The New General Service List. Retrieved March 25, 2018, from www.newgeneralservicelist.org

Browne, C., Culligan, B., & Phillips, J. (2013). *Frequently Asked Questions*. Retrieved March 25, 2018, from http://www.newgeneralservicelist.org/ngsl-faq/

Cohen, A., Glasman, H., Rosenbaum-Cohen, P. R., Ferrara, J., & Fine, J. (1988). Reading English for specialised purposes: Discourse analysis and the standard informants. In P. Carrell, J. Devine, & D. Eskey (Eds.), *Interactive approaches to second language reading* (pp. 152–167). Cambridge: Cambridge University Press.

Coxhead, A. (2000). A new academic word list. *TESOL Quarterly*, *34*, 213–238.

Charles, M. (2003) 'This mystery…': a corpus-based study of the use of nouns to construct stance in theses from two contrasting disciplines, *Journal of English for Academic Purposes*, *2*, 313–327.

Chung, T. & Nation, I. S. P. (2003). Technical Vocabulary is Specialised Texts. *Reading in a Foreign Language*, *15*(2), 103–116

Durrant, P. (2009). Investigating the viability of a collocation list for students of English for academic purposes. *Journal of English for Specific Purposes*, *28*(3), 157–169.

Durrant, P. (2017). Lexical bundles and disciplinary variation in university students' writing: Mapping the territories. *Applied Linguistics*, *38*(2), 165–193.

Eldridge, J. (2008). "No, there isn't an 'academic vocabulary,' but…" *TESOL Quarterly*, *42(1)*, 109–113

Flowerdew, J. (1993). Concordancing as a tool in course design. *System*, *21*, 231–244.

Gardner, D. (2007). Validating the construct of "word" in applied corpus-based research: a critical survey. *Applied Linguistics*, *28*(2), 241–265.

Hyland, K. (2000). *Disciplinary discourses: social interactions in academic writing*. UK: Pearson.

Hyland, K. (2008). Academic clusters: Text patterning in published and postgraduate writing. *International Journal of Applied Linguistics*, *18*(1).

Hyland, K., & Tse, P. (2007). Is there an "Academic vocabulary"? *TESOL Quarterly*, *412*(2), 235–253.

Krishnamurthy, R. (2000). Size matters: Creating dictionaries from the world's largest corpus. In *Proceedings from the Eighth Annual KOTESOL International Conference*, Taegu, Korea, Sept. 30 – Oct. 1, 2000.

Laufer, B. (1988). What percentage of lexis is necessary for comprehension? In C. Lauren and M. Norman (Eds.), *Special Language: From humans to thinking machine* (pp. 316–323). Clevedon: Multilingual Matters.

Lea, M. R., & Street, B. V. (1998). Student writing in higher education: an academic literacies approach, *Studies in Higher Education*, *23*, 157–172.

Li, S. L., & Pemberton, R. (1994). An investigation of students' knowledge of academic and subtechnical vocabulary. *Proceedings of the Joint Seminar on Corpus Linguistics and Lexicology* (pp. 183–196). Hong Kong SAR, China: Hong Kong University of Science and Technology

Li, Y., & Qian, D**.** (2010). Profiling the Academic Word List (AWL) in a financial corpus. *System*, *38*, 402–411.

Martinez, I. A., Beck, S.C. & Panza, C. B. (2009). Academic vocabulary in agriculture research articles: A corpus-based study. *Journal of English for Specific Purposes*, *28*, 183–198.

Murray, N. (2016). An academic literacies argument for decentralising EAP provision. *ELT Journal*, *70*(4).

Nation, P. (2001). *Learning vocabulary in another language*. New York: Cambridge University Press.

Nation, P., & Waring, R. (1997) Vocabulary Size, Text Coverage and Word Lists. In Schmitt, N. and M. McCarthy (Eds.), *Vocabulary: Description, Acquisition and Pedagogy* (pp. 6–19). Cambridge: Cambridge University Press. Version: Sept 1997

North, S. (2005). Different values, different skills? A comparison of essay writing by students form arts and science backgrounds. *Studies in Higher Education*, *30*(5), 517-533

Schmitt, N. and Zimmerman, C. B. (2002), Derivative Word Forms: What Do Learners Know?. *TESOL Quarterly*, *36*, 145–171.

Sinclair, J. (1991). *Corpus, concordance and collocation*. Oxford: OUP

Simpson-Vlach, R., & Ellis, N. C. (2010). An Academic Formulas List: New Methods in Phraseology Research. *Applied Linguistics*, *31*(4), 487–512.

Sketch Engine (2018). DOAJ corpora – Open Access Journals corpora. Retrieved November 3, 2018, from: https://www.sketchengine.eu/doaj_corpus/

Sketch Engine (2018). *Glossary*. Retrieved November 3, 2018, from: https://www.sketchengine.eu/user-guide/glossary/?cat=attribute

Sketch Engine (2018). *Blacklist*. Retreived March 14, 2018, from: https://www.sketchengine.eu/user-guide/user-manual/word-list/#toggle-id-2

Thomas, J. (2017). *Discovering English with Sketch Engine* (2nd ed.). Versatile.

Tovar, C. E. (2009). DSGE Models and Central Banks. *Economics: The Open-Access, Open-Assessment E-Journal*, *3* (2009-16), 1–31.

Vongpumivitch, V., Huang, J.H., & and Chang, Y.C**.** (2009). Frequency analysis of the words in the Academic Word List (AWL) and non-AWL content words in applied linguistics research papers. *Journal of English for Specific Purposes*, *28*, 33–41.

Wang, J., Liang, S. L., & Ge, G. C. (2008). Establishment of a Medical Academic Word List. *Journal of English for Specific Purposes*, *27*, 442–458.

West, M. (1953). *A general service list of English words*. London: Longman.

Appendix 1. Economics Academic Word List (EAWL) [887 headwords]

Key	
Headword	The headword in all its different parts of speech. For example, *rise* is both verb and noun.
Inflections	All inflected forms of the headword in all their different parts of speech. For example, the headword *rise* subsumes the inflections *rises, rose, risen, rising* and *risings*, as verbs and nouns. Differences between American/ British spellings have also been grouped under the same headword.
Bolded items	The most frequently occurring form of a headword in Economics_OAJ. For example, for the headword *agglomeration*, **agglomerations** is the most frequently occurring form in Economics_OAJ.
<u>Underlined items</u>	The underlined word form meets the frequency criterion for inclusion on the list (raw freq. above 351), but is not the most frequently occurring form of the headword. For example, the headword <u>agglomeration</u> occurred with a raw frequency of 467, and the inflection **agglomerations** occurred with a raw frequency of 480.
Freq. 1	Raw frequency of the most frequently occurring form of the headword in Economics_OAJ. For example, the frequency of **agglomerations,** the most frequently occurring form of the headword *agglomeration*, is **480.**
Freq. 2	Raw frequency of the headword *and* its inflections in Economics_OAJ. For example, the frequency of the headword *agglomeration* and its inflection *agglomerations* is 947.

Headword	Inflections			Freq. 1	Freq. 2
abnormal				**439**	439
absent	absents	absented	absenting	**365**	366
absorption				**742**	742
academy	academies			**980**	988
accelerate	accelerates	**accelerated**	accelerating	**558**	1026
acceptance	acceptances			**846**	856
accessibility				**794**	794
accessible				**613**	613
accession	accessions	accessioned	accessioning	**1293**	1297
accomplishment	accomplishments			**593**	667
accordance				**1951**	1951
accordingly				**1394**	1394
accountability				**652**	652
accountancy				**634**	634
accountant	**accountants**			**618**	957
accumulate	accumulates	**accumulated**	accumulating	**629**	995
accumulation	accumulations			**1454**	1506
accuracy	accuracies			**1502**	1520
accurately				**479**	479

actively				**433**	433
adaptation	adaptations			**1038**	1185
adaptive				**570**	570
additionally				**977**	977
adequacy	adequacies			**520**	520
adequately				**383**	383
adherence	adherences			**372**	378
administrative				**2747**	2747
adoption	adoptions			**1970**	2081
adverse				**835**	835
affective				**769**	769
afferent	afferents			**398**	399
afterward	**afterwards**			**424**	446
agglomeration	**agglomerations**			**480**	947
aggregate	aggregates	aggregated	aggregating	**2863**	3926
aggregation	aggregations			**412**	431
agriculture				**2969**	2969
algorithm	algorithms			**698**	989
alliance	**alliances**			**398**	458
allocate	allocates	**allocated**	allocating	**1084**	1894
allocation	allocations			**2367**	2745

alpha	alphas			**491**	530
alternatively				**382**	382
ambiguity	ambiguities			**376**	416
ambiguous				**543**	543
amenity	**amenities**			**465**	492
analytical				**891**	891
anchor	anchors	anchored	anchoring	**465**	1033
annal	**annals**			**1695**	1695
annually				**467**	467
anonymous				**464**	464
appendix	appendixes	appendices		**2080**	2138
applicable				**917**	917
applicant	**applicants**			**382**	763
appraisal	appraisals			**398**	499
appreciation	appreciations			**1021**	1057
approximation	approximations			**366**	408
arbitrary				**364**	364
artificial				**564**	564
aspect	**aspects**			**5626**	7869
assembly	assemblies			**618**	641
assignment	assignments			**373**	473

assurance	assurances							**767**	816
asymmetric								**1003**	1003
asymmetry	asymmetries							**690**	886
attractiveness								**965**	965
auction	auctions	auctioned	auctioning					**1382**	2011
audit	audits	audited	auditing					**4719**	5739
auditor	**auditors**							**1148**	2147
augment	augments	**augmented**	augmenting					**395**	520
authority	**authorities**							**3954**	6455
authorize	authorizes	**authorized**	authorizing	authorise	authorises	authorised	authorising	**507**	736
autocorrelation	autocorrelations							**552**	602
automatic	automatics							**755**	757
autonomous								**684**	684
autonomy	autonomies							**929**	931
autoregressive								**403**	403
availability	availabilities							**1698**	1717
aversion	aversions							**1505**	1513
avoidance	avoidances							**1157**	1157
axis	axes							**515**	663
backward	backwards							**380**	439
bankruptcy	bankruptcies							**1354**	1509

bargain	bargains	bargained	**bargaining**	**910**	1013
baseline	baselines			**387**	395
behavioral	behavioural			**1233**	1940
benchmark	benchmarks	benchmarked	benchmarking	**746**	1703
beneficial				**821**	821
beneficiary	**beneficiaries**			**681**	1118
beta	betas			**478**	571
best	bests	bested	besting	**6297**	6293
better	betters	bettered	bettering	**8692**	8712
bibliography	bibliographies			**412**	414
bidder	bidders			**831**	1455
bilateral				**783**	783
binary	binaries			**558**	560
bold	bolder	boldest		**384**	415
born				**570**	570
borrower	**borrowers**			**515**	752
bound	bounds	bounded	bounding	**495**	1072
broadly				**411**	411
bubble	bubbles			**394**	638
budgetary				**1999**	1999
bureaucracy	bureaucracies			**456**	486

bureaucratic									**357**	357
calculation	calculations								**2355**	3619
calendar	calendars								**381**	390
candidate	candidates								**895**	1522
capitalism									**1073**	1073
capitalist	capitalists								**634**	777
capitalization	capitalizations	capitalisation	capitalisations						**838**	989
causal									**1046**	1046
causality	causalities								**1547**	1565
census	censuses								**387**	429
centralize	centralizes	**centralized**	centralizing	centralise	centralises	centralised	centralising		**440**	569
certainty	certainties								**509**	534
certificate	**certificates**	certificated	certificating						**392**	696
certification	certifications								**501**	536
certify	certifies	**certified**	certifying						**388**	546
circulate	circulates	circulated	**circulating**						**930**	1061
circulation	circulations								**903**	906
classification	classifications								**3374**	3720
classify	classifies	**classified**	classifying						**1202**	1961
client	**clients**								**2994**	4970
coalition	coalitions								**420**	558

coefficient	coefficients			**4417**	7936
cognition	cognitions			**385**	429
cognitive				**2339**	2339
coherence	coherences			**853**	857
coherent				**795**	795
cohesion				**2471**	2471
cohort	cohorts			**727**	1182
cointegration				**1481**	1481
collaboration	collaborations			**1118**	1217
collaborative				**446**	446
collateral	collaterals			**496**	512
collective	collectives			**1540**	1582
commerce				**997**	997
commodity	commodities			**1199**	2117
commonly				**953**	953
communist	communists			**622**	646
comparable				**1119**	1119
comparative	comparatives			**2532**	2534
compatibility				**376**	376
compatible	compatibles			**718**	720
compensate	compensates	compensated	compensating	**376**	871

compensatory				**430**	430
competence	competences	competency	**competencies**	**1298**	3684
competent				**474**	474
competitiveness				**5528**	5528
complementary				**921**	921
completion	completions			**590**	626
compliance	compliances			**1216**	1216
comply	complies	complied	complying	**540**	777
composite	composites	composited	compositing	**465**	478
compulsory				**601**	601
computation	computations			**383**	512
conceive	conceives	**conceived**	conceiving	**359**	596
conception	conceptions			**761**	928
conceptual				**1225**	1225
conditional	conditionals			**1419**	1427
conference	conferences			**911**	1251
configuration	configurations			**535**	713
conformity				**531**	531
confront	confronts	**confronted**	confronting	**518**	879
conscious				**777**	777
consensus	consensuses			**855**	855

conservation				**654**	654
considerably				**1093**	1093
consistency	consistencies	consistence	consistences	**1022**	1065
consistently				**636**	636
consolidate	consolidates	**consolidated**	consolidating	**732**	1118
consolidation	consolidations			**1074**	1106
constitution	constitutions			**449**	479
constrain	constrains	**constrained**	constraining	**543**	796
consumption	consumptions			**8593**	8670
contagion	contagions			**703**	703
contextual				**361**	361
continental	continentals			**390**	390
contingent	contingents			**486**	488
continuity	continuities			**595**	602
continuously				**809**	809
contraction	contractions			**353**	407
contractual				**501**	501
contradictory				**360**	360
contrary	contraries			**1672**	1673
convergence	convergences			**3780**	3795
conversely				**416**	416

conversion	conversions			**630**	666
cooperate	cooperates	cooperated	cooperating	**472**	685
cooperative	cooperatives			**690**	937
coordinate	coordinates	**coordinated**	coordinating	**551**	1560
coordination				**1804**	1804
correction	corrections			**1080**	1284
correctly				**849**	849
correlate	correlates	**correlated**	correlating	**2248**	2705
correlation	correlations			**5755**	7087
correspondence	correspondences			**832**	875
corruption	corruptions			**1379**	1382
costly				**622**	622
cotton	cottons	cottoned	cottoning	**354**	358
covariance	covariances			**384**	445
creativity				**810**	810
credibility				**872**	872
credible				**378**	378
creditor	**creditors**			**833**	1145
criterion	**criteria**			**4688**	6991
cross-border				**685**	685
cross-sectional				**373**	373

cue	cues	cued	cueing	**1748**	2860
cumulative				**899**	899
cure	**cures**	cured	curing	**359**	844
cyclical				**613**	613
dataset	datasets			**360**	463
debtor	debtors			**486**	751
decentralization	decentralisation			**522**	611
decision-making				**2019**	2019
decisional				**678**	678
decisive				**628**	628
decomposition	decompositions			**563**	626
default	defaults	defaulted	defaulting	**1560**	1846
deficiency	**deficiencies**			**485**	662
demographic	demographics			**1833**	1992
denote	denotes	denoted	denoting	**663**	1810
dependence				**1286**	1286
dependency	dependencies			**561**	741
depreciation	depreciations			**1585**	1638
deregulation	deregulations			**390**	406
derivative	**derivatives**			**841**	1235
descriptive				**1325**	1325

desirable	desirables					**604**	604
destination	**destinations**					**3578**	6149
detection	detections					**374**	377
deterioration	deteriorations					**550**	561
determinant	**determinants**					**1923**	2655
deterministic						**392**	392
devaluation	devaluations					**432**	514
deviation	deviations					**2331**	4090
diagnosis	diagnoses					**854**	956
diagnostic	diagnostics					**497**	546
diagram	diagrams	diagrammed	diagramming	diagramed	diagraming	**398**	588
dictator	dictators					**420**	544
differential	differentials					**826**	1228
differentiate	differentiates	**differentiated**	differentiating			**584**	1272
differentiation	differentiations					**809**	822
diffusion						**504**	504
dilemma	dilemmas					**614**	1028
diminish	diminishes	diminished	**diminishing**			**964**	2240
directive	directives					**1005**	1419
disadvantage	**disadvantages**	disadvantaged	disadvantaging			**712**	1382
disclosure	disclosures					**1193**	1552

discourse	discourses	discoursed	discoursing	**376**	415
discretion	discretions			**361**	362
discretionary				**402**	402
discrimination	discriminations			**1289**	1299
disparity	**disparities**			**862**	1067
dispersion	dispersions			**452**	481
disposable	disposables			**461**	461
disposal	disposals			**453**	513
distinctive				**353**	353
distortion	**distortions**			**470**	920
distress	distresses	distressed	distressing	**370**	531
distribution	distributions			**8392**	9293
diverse				**825**	825
diversification	diversifications			**1383**	1387
diversify	diversifies	**diversified**	diversifying	**453**	759
dividend	**dividends**			**850**	1473
documentation				**389**	389
domain	domains			**2926**	4198
dominance				**614**	614
dominant				**1705**	1705
donation	**donations**			**493**	905

downward	downwards					**506**	564
dual	duals	dualled	dualling	dualed	dualing	**440**	442
dummy	dummies	dummied	dummying			**1239**	1643
durable	durables					**528**	727
duration	durations					**1673**	1756
dynamic	dynamics					**4260**	8005
e-government	e-governments					**497**	498
e-learning	elearning					**539**	592
ecological						**944**	944
econometric	econometrics					**1369**	1515
economical						**2085**	2085
economically						**674**	674
economist	**economists**					**2139**	2825
effectiveness						**2141**	2141
efficiently						**804**	804
elaborate	elaborates	**elaborated**	elaborating			**736**	1476
elaboration	elaborations					**1005**	1030
elasticity	elasticities					**1671**	2131
electoral						**356**	356
eligible						**542**	542
elimination	eliminations					**629**	632

embed	embeds	**embedded**	embedding	**351**	441
emergence				**1007**	1007
emission	**emissions**			**1023**	1355
empirical				**6813**	6813
empirically				**706**	706
endogeneity				**382**	382
endogenous				**1297**	1297
endowment	endowments			**680**	932
enforcement	enforcements			**694**	700
engagement	engagements			**515**	639
enlargement	enlargements			**504**	522
entity	entities			**2534**	5074
entrepreneur	**entrepreneurs**			**1408**	2039
entrepreneurial				**1478**	1478
entrepreneurship				**1340**	1340
equality	equalities			**1019**	1038
equilibrium	equilibria			**5900**	6497
equity	equities			**3515**	3706
essence	essences			**728**	729
essentially				**843**	843
estimation	estimations			**3264**	4275

estimator	estimators							**564**	795
ethical								**1655**	1655
ethic	**ethics**							**1205**	1290
evasion	evasions							**1853**	1879
evident								**842**	842
evolutionary								**690**	690
ex								**721**	721
excellence	excellences							**788**	790
excessive								**1208**	1208
exclusion	exclusions							**701**	719
exclusive	exclusives							**414**	414
exclusively								**826**	826
execution	executions							**805**	827
existent								**748**	748
exit	exits	exited	exiting					**401**	553
exogenous								**989**	989
expectancy	expectancies							**489**	550
expertise	expertises	expertised	expertising	expertize	expertizes	expertized	expertizing	**811**	815
explanatory								**1898**	1898
explicit	explicits							**1020**	1020
explicitly								**977**	977

exploit	exploits	exploited	exploiting	**517**	1253
exploitation	exploitations			**1327**	1431
exploratory				**392**	392
exponential				**538**	538
exporter	**exporters**			**417**	679
externality	**externalities**			**635**	788
facilitate	facilitates	facilitated	facilitating	**1323**	2682
faculty	faculties			**2650**	2834
fairness				**741**	741
fascicle	fascicles			**1206**	1207
favourable	**favorable**			**1156**	2079
feasible				**451**	451
federation	federations			**645**	690
feedback				**1637**	1637
fertility				**2255**	2255
financially				**505**	505
finite				**742**	742
fiscal	fiscals			**8677**	8677
flexibility				**1835**	1835
fluctuation	**fluctuations**			**1212**	1573
formally				**469**	469

formulate	formulates	**formulated**	formulating					**677**	1234
formulation	formulations							**802**	882
forum	forums							**420**	542
foster	fosters	fostered	fostering					**513**	797
fraction	fractions							**561**	619
fraud	frauds							**982**	1072
frontier	frontiers							**604**	690
functionality	functionalities							**374**	470
fuzzy	fuzzier	fuzziest						**951**	954
gamble	gambles	gambled	gambling					**830**	1952
generalize	generalizes	**generalized**	generalizing	generalise	generalises	generalised	generalising	**587**	982
generic	generics							**432**	437
geographic								**603**	603
geographical								**1338**	1338
globalization	globalisation							**2528**	3345
globally								**572**	572
goods								**10190**	10190
governance								**4224**	4224
governmental								**897**	897
gradual	graduals							**538**	538
graph	graphs							**984**	1336

graphical				**369**	369
gross	grosses	grossed	grossing	**3340**	3341
guidance				**517**	517
handicap	handicaps	handicapped	handicapping	**409**	443
harmful				**437**	437
harmonization	harmonisation			**865**	956
hazard	hazards			**754**	882
healthcare				**1024**	1024
hedge	hedges	hedged	**hedging**	**404**	899
heritage	heritages			**978**	982
heterogeneity				**633**	633
heterogeneous				**549**	549
heuristic	heuristics			**1878**	2604
hierarchical				**692**	692
hierarchy	hierarchies			**824**	965
homogeneous	homogenous			**382**	583
horizon	horizons			**764**	1109
horizontal	horizontals			**761**	762
hospitality				**398**	398
hybrid	hybrids			**363**	401
hydro	hydros			**539**	539

hypothetical	hypotheticals			**648**	648
identical				**1250**	1250
identification	identifications			**2361**	2365
imbalance	**imbalances**			**913**	1222
immaterial				**645**	645
immigration				**422**	422
impact	impacts	impacted	impacting	**13529**	14731
imperfect				**454**	454
implicit				**707**	707
implicitly				**791**	791
importantly				**533**	533
impulse	impulses			**452**	593
inability	inabilities			**486**	488
inadequate				**661**	661
inappropriate				**357**	357
incidence	incidences			**557**	570
inclusion	inclusions			**1061**	1068
incomplete				**754**	754
inconsistent				**504**	504
incorrect				**440**	440
incur	incurs	**incurred**	incurring	**383**	626

indebtedness								**639**	639
independently								**636**	636
indicator	**indicators**							**8727**	13055
indirect								**1802**	1802
indirectly								**691**	691
individually								**559**	559
induce	induces	**induced**	inducing					**761**	1731
industrialize	industrializes	**industrialized**	industrializing	industrialise	industrialises	industrialised	industrialising	**389**	516
inefficiency	inefficiencies							**360**	480
inefficient								**748**	748
inequality	inequalities							**3450**	4037
inevitable								**387**	387
infer	infers	inferred	inferring					**381**	723
inference	inferences							**705**	1311
inferior	inferiors							**378**	381
inflationary								**476**	476
inflow	**inflows**							**641**	2043
influential	influentials							**365**	365
informal								**1853**	1853
informatics								**1544**	1544
informational								**1448**	1448

infrastructure	infrastructures			**3685**	3841
inhabitant	**inhabitants**			**997**	1378
inherent				**556**	556
initiate	initiates	**initiated**	initiating	**651**	1091
innovative				**2021**	2021
insignificant				**854**	854
insolvency	insolvencies			**478**	495
instability	instabilities			**1279**	1330
institute	institutes	instituted	instituting	**1748**	2235
insufficient				**1332**	1332
intangible	intangibles			**1009**	1088
integral	integrals			**406**	411
integration	integrations			**6350**	6447
integrative				**637**	637
integrity				**464**	464
intelligent				**481**	481
intensity	intensities			**2245**	2346
intensive	intensives			**977**	981
interact	interacts	interacted	interacting	**498**	829
interactive				**438**	438
interbank				**444**	444

intercept	intercepts	intercepted	intercepting	**389**	445
interdependence	interdependencies	interdependency		**677**	907
interface	interfaces	interfaced	interfacing	**411**	530
intermediary	intermediaries			**761**	1441
intermediate	intermediates	intermediated	intermediating	**1719**	1812
intermediation				**374**	374
internationalization	internationalisation			**434**	544
internationally				**566**	566
internet				**3435**	3435
interpersonal				**376**	376
intertemporal				**418**	418
interval	intervals			**1645**	2313
intrinsic				**533**	533
intuition	intuitions			**538**	659
intuitive				**639**	639
inventory	inventories	inventoried	inventorying	**731**	1077
inverse	inverses			**569**	573
irrational				**381**	381
irrespective				**562**	562
judicial				**368**	368
juridical				**569**	569

justification	justifications			**437**	510
keyword	**keywords**			**2653**	2723
know-how				**409**	409
knowledge-based				**572**	572
lag	lags	lagged	lagging	**1011**	2532
latent				**530**	530
lease	leases	leased	**leasing**	**617**	901
lecturer	lecturers			**407**	442
legislative				**1172**	1172
leisure				**724**	724
lemma	lemmas	lemmata		**370**	384
lesser				**393**	393
leverage	leverages	leveraged	leveraging	**927**	1089
liberalization	liberalisation			**1412**	2091
liberty	liberties			**362**	553
likelihood				**1543**	1543
likewise				**369**	369
linear				**2466**	2466
linkage	**linkages**			**353**	669
liquidity				**4072**	4072
literacy	literacies			**358**	359

logical				**959**	959
logistic	**logistics**			**537**	1327
long-run				**1335**	1335
long-term				**3486**	3486
lottery	lotteries			**499**	761
loyalty	loyalties			**969**	974
machinery	machineries			**465**	489
macro	macros			**699**	702
macroeconomic	macroeconomics			**4026**	4397
magnitude	magnitudes			**1052**	1199
mainstream	mainstreams	mainstreamed	mainstreaming	**567**	598
managerial				**2840**	2840
mandatory	mandatories			**658**	659
manifest	manifests	**manifested**	manifesting	**572**	1262
manifestation	manifestations			**420**	582
manipulate	manipulates	**manipulated**	manipulating	**376**	799
manipulation	manipulations			**974**	1295
marginal	marginals			**2322**	2331
materiality	materialities			**1564**	1564
mathematical				**1024**	1024
matrix	matrixes			**2071**	2122

maturity	maturities							**1115**	1250
max	maxes	maxed	maxing					**410**	413
maximization	maximisation							**710**	759
maximize	maximizes	maximized	maximizing	maximise	maximises	maximised	maximising	**893**	2223
meaningful								**402**	402
measurable	measurables							**374**	374
media								**1545**	1545
median	medians							**930**	985
mediate	mediates	**mediated**	mediating					**376**	611
medium-sized	medium-size							**445**	458
mentality	mentalities							**354**	472
merchandise	merchandises	merchandised	merchandising	merchandize	merchandizes	merchandized	merchandizing	**503**	576
merger	**mergers**							**736**	1130
methodological								**1212**	1212
methodology	methodologies							**3671**	4177
metropolitan								**379**	379
micro	micros							**682**	682
microeconomic	microeconomics							**500**	612
migrant	**migrants**							**440**	700
migration	migrations							**3060**	3128
mineral	minerals							**388**	503

minimal								**872**	872
minimize	minimizes	minimized	minimizing	minimise	minimises	minimised	minimising	**466**	1138
ministry	ministries							**1741**	1934
minus	minuses							**393**	434
mismatch	mismatches	mismatched	mismatching					**377**	446
mobility	mobilities							**2184**	2190
modernization	modernizations	modernisation	modernisations					**825**	942
modest								**646**	646
modification	modifications							**672**	1177
monetary								**10426**	10426
monopoly	monopolies							**633**	767
mortality	mortalities							**741**	741
motive	**motives**							**463**	692
multinational	multinationals							**1013**	1242
multiplier	multipliers							**547**	678
multitude	multitudes							**380**	382
multivariate								**388**	388
municipal								**387**	387
municipality	municipalities							**397**	784
mutually								**468**	468
namely								**3409**	3409

necessity	necessities			**1846**	2077
negatively				**1336**	1336
neoclassical				**1069**	1069
neutral	neutrals			**717**	718
nominal				**2187**	2187
non				**1241**	1241
non-linear				**379**	379
nonetheless				**453**	453
norm	**norms**			**1378**	1778
normative				**786**	786
notable	notables			**353**	353
null	nulls	nulled	nulling	**1753**	1754
numeracy				**599**	599
numerical				**795**	795
oblige	obliges	**obliged**	obliging	**452**	571
obstacle	**obstacles**			**592**	920
obtain	obtains	**obtained**	obtaining	**6233**	11600
occupation	occupations			**542**	876
occupational				**468**	468
occurrence	occurrences			**785**	876
odds				**539**	539

offset	offsets	offsetting							**443**	562
omit	omits	**omitted**	omitting						**367**	531
ongoing									**557**	557
openness									**1047**	1047
operational									**3201**	3201
optimal									**3005**	3005
optimistic									**361**	361
optimization	optimizations	optimisation	optimisations						**823**	925
optimum	optimums								**744**	747
oracle	oracles								**573**	575
organizational	organisational								**5573**	6661
organism	**organisms**								**429**	759
orientation	orientations								**2398**	2552
orient	orients	**oriented**	orienting	orientate	orientates	orientated	orientating		**1308**	1690
outflow	**outflows**								**369**	501
outsource	outsources	outsourced	**outsourcing**						**876**	1083
outstanding									**497**	497
overview	overviews								**998**	1023
p-value	p-values								**365**	562
paradigm	paradigms								**1250**	1493
paradox	paradoxes								**454**	530

parameter	**parameters**			**3254**	5329
parity	parities			**479**	555
parliament	parliaments			**729**	808
partial	partials			**1403**	1405
partially				**956**	956
passive	passives			**825**	864
payoff	payoffs	pay-off	pay-offs	**2350**	3573
penetration	penetrations			**439**	441
permanently				**602**	602
persistence				**773**	773
persistent				**446**	446
philosophical				**669**	669
pi	pis			**399**	427
pillar	pillars			**640**	997
placement	placements			**438**	512
plausible				**442**	442
poorly				**380**	380
portfolio	portfolios			**3116**	3828
positively				**1649**	1649
practically				**779**	779
practitioner	**practitioners**			**507**	594

precede	precedes	preceded	**preceding**	**435**	727
prediction	**predictions**			**2338**	3904
predictive				**490**	490
predictor	predictors			**500**	881
predominantly				**365**	365
preliminary	preliminaries			**651**	659
premium	premiums			**1241**	1863
preservation				**374**	374
prevail	prevails	prevailed	**prevailing**	**437**	929
prevention				**992**	992
privatization	privatizations	privatisation	privatisations	**1707**	2240
probabilistic				**416**	416
problematic				**572**	572
productive				**2007**	2007
productivity				**6873**	6873
profitability				**2825**	2825
profitable				**1059**	1059
profitableness				**660**	660
profound				**529**	529
progressive	progressives			**544**	546
projection	**projections**			**393**	733

prominent				**402**	402
promotional				**470**	470
pronounce	pronounces	**pronounced**	pronouncing	**579**	609
propensity	propensities			**636**	705
proportional				**588**	588
proposition	propositions			**1047**	1410
prospective				**378**	378
prosperity				**625**	625
protocol	protocols			**498**	665
provider	**providers**			**1159**	1714
proximity				**487**	487
proxy	proxies			**781**	930
prudent				**354**	354
prudential				**477**	477
psychology	psychologies			**987**	988
publicly				**400**	400
publish	publishes	**published**	publishing	**2353**	3845
punishment	punishments			**577**	662
purely				**416**	416
pursuit	pursuits			**404**	437
qualitative				**2447**	2447

quantify	quantifies	quantified	quantifying	**430**	870
quantitative				**2228**	2228
quarterly	quarterlies			**753**	753
questionnaire	questionnaires			**2328**	3259
quota	**quotas**			**561**	1095
randomly				**1033**	1033
rational				**2141**	2141
rationality				**1136**	1136
realistic				**740**	740
realization	realizations	realisation	realisations	**868**	959
receipt	**receipts**	receipted	receipting	**390**	582
reception	receptions			**611**	616
recession	recessions			**1693**	2023
recipient	recipients			**380**	700
reciprocity				**409**	409
recruitment				**690**	690
redistribution	redistributions			**424**	427
regime	regimes			**2094**	2994
regression	regressions			**4148**	5111
regulator	**regulators**			**520**	789
regulatory				**2197**	2197

rehabilitation	rehabilitations			**351**	354
rejection	rejections			**497**	544
relational				**609**	609
relevance	relevances	relevancy	relevancies	**1296**	1319
reliability	reliabilities			**1137**	1199
remittance	**remittances**			**1839**	2014
remuneration	remunerations			**608**	633
renewable	renewables			**914**	953
reorganization	reorganizations	reorganisation	reorganisations	**601**	941
repayment	repayments			**407**	471
replacement	replacements			**513**	524
republic	republics			**4386**	4525
residence	residences			**653**	674
residential				**552**	552
residual	residuals			**829**	1549
respective				**1659**	1659
respondent	**respondents**			**8401**	8860
restrictive				**649**	649
restructure	restructures	restructured	**restructuring**	**1468**	1664
retailer	**retailers**			**522**	788
rhythm	rhythms			**686**	862

rigorous						**372**	372
risky	riskier	riskiest				**1683**	1877
robust	robuster	robustest				**937**	937
robustness						**458**	458
rise	rises	rose	risen	rising	risings	**2775**	5446
rotation	rotations					**462**	607
satisfactory						**469**	469
scarce	scarcer	scarcest				**367**	405
scenario	scenarios					**2280**	3969
seaside						**948**	948
seasonal						**500**	500
sectoral						**861**	861
segmentation	segmentations					**401**	413
selective						**351**	351
seller	sellers					**827**	1290
semester	semesters					**422**	433
sensitivity	sensitivities					**968**	1003
separately						**1074**	1074
separation	separations					**679**	687
serial	serials					**391**	396
sequential						**550**	550

short-run				**509**	509
short-term				**1871**	1871
similarity	similarities			**727**	1210
simplicity	simplicities			**382**	382
simplify	simplifies	**simplified**	simplifying	**612**	1282
simulation	simulations			**1258**	1858
simultaneous				**524**	524
simultaneously				**1293**	1293
so-called	socalled			**1121**	1199
socialist	socialists			**469**	505
socially				**589**	589
societal				**383**	383
socio-economic	socioeconomic			**832**	1204
solar	solars			**361**	361
sole	soles	soled	soling	**363**	367
solely				**510**	510
solidarity				**509**	509
solvency				**782**	782
sophisticate	sophisticates	**sophisticated**	sophisticating	**765**	766
sovereign	sovereigns			**729**	755
sovereignty	sovereignties			**448**	451

spatial								**1189**	1189
specialization	specializations	specialisation	specialisations					**1098**	1541
specialty	specialties	speciality	specialities					**368**	440
specification	specifications							**1303**	2120
specificity	specificities							**445**	546
speculative								**740**	740
sphere	spheres							**745**	913
spite	spites	spited	spiting					**788**	788
stabilization	stabilisation							**687**	914
stakeholder	**stakeholders**							**1363**	1678
standardization	standardizations	standardisation	standardisations					**535**	569
standardize	standardizes	**standardized**	standardizing	standardise	standardises	standardised	standardising	**684**	954
static	statics							**939**	991
stationarity								**365**	365
stationary								**883**	883
statistical								**4113**	4113
statistically								**2365**	2365
stimulation	stimulations							**507**	513
stimulus	stimuli							**968**	1675
stipulate	stipulates	**stipulated**	stipulating					**551**	1055
stipulation	**stipulations**							**512**	573

symmetric				**602**	602
synergistic				**400**	400
synthesis	syntheses			**490**	508
synthetic	synthetics			**409**	409
systematic				**1181**	1181
systematically				**534**	534
systemic				**932**	932
tab	tabs	tabbed	tabbing	**755**	761
tangible	tangibles			**619**	647
target-cost	target-costs			**531**	663
tariff	tariffs	tariffed	tariffing	**678**	1211
taxable				**571**	571
taxation				**2697**	2697
taxpayer	**taxpayers**	tax-payer	tax-payers	**536**	753
technological				**4418**	4418
telecommunication	**telecommunications**			**464**	664
tempo	tempos			**493**	494
temporal				**620**	620
territorial	territorials			**1453**	1453
tertiary	tertiaries			**599**	599
textile	textiles			**400**	639

theorem	theorems			**698**	765
theoretically				**541**	541
thereby				**1072**	1072
thesis	theses			**456**	553
thorough				**385**	385
threshold	thresholds			**1434**	1685
ton	**tons**	tonne	tonnes	**354**	560
touristic				**1645**	1645
trade-off	trade-offs	tradeoff	tradeoffs	**428**	805
trader	**traders**			**619**	794
traditionally				**481**	481
transaction	transactions			**3089**	5384
transformation	transformations			**1669**	2135
transitional				**356**	356
translation	translations			**367**	414
transmission	transmissions			**962**	979
transmit	transmits	**transmitted**	transmitting	**394**	765
transnational	transnationals	trans-national	trans-nationals	**450**	525
transparency				**1754**	1754
transparent				**620**	620
treasury	treasuries			**1060**	1089

treaty	treaties							**970**	1082
turnover	turnovers							**1840**	1869
ultimate	ultimates							**399**	399
uncertain								**833**	833
unchanged								**460**	460
unconscious								**449**	449
underground	undergrounds	undergrounded	undergrounding					**554**	554
underline	underlines	underlined	underlining					**437**	1128
unemployed								**1326**	1326
unexpected								**487**	487
unitary								**397**	397
unity	unities							**618**	645
unstable								**440**	440
upward	upwards							**559**	654
usage	usages							**1303**	1320
usefulness								**472**	472
utility	utilities							**3283**	4106
utilization	utilisation							**735**	959
utilize	utilizes	**utilized**	utilizing	utilise	utilises	utilised	utilising	**406**	1081
valid								**1461**	1461
validity	validities							**1782**	2011

valuation	valuations			**1157**	1408
variability	variabilities			**915**	916
variance	variances			**2398**	2650
variant	variants			**466**	860
vector	vectors	vectored	vectoring	**1392**	1725
verbal	verbals	verballed	verballing	**537**	537
verify	verifies	verified	verifying	**468**	1053
vertical	verticals			**836**	837
viable				**604**	604
viewpoint	viewpoints			**383**	449
violation	**violations**			**491**	880
virtual				**914**	914
vocational				**760**	760
volatile				**411**	411
volatility				**2895**	2895
vulnerability	vulnerabilities			**621**	825
vulnerable				**693**	693
website	websites	web-site	web-sites	**863**	1334
well-being	wellbeing			**801**	975
well-known	wellknown			**557**	599
whereby				**441**	441

widespread	wide-spread				**598**	615
willingness					**745**	745
workforce	workforces	work-force	work-forces		**933**	949
workplace	workplaces				**492**	626
worldwide	world-wide				**1232**	1299
yearly					**511**	511
zero	zeros	zeroes	zeroed	zeroing	**2647**	2712

Appendix 2. 100 most frequent EAWL words

impact	authority	statistical	globalization	facilitate
indicator	integration	utility	gross	determinant
obtain	best	deviation	questionnaire	variance
monetary	destination	liquidity	operational	heuristic
goods	audit	inequality	migration	orientation
distribution	competitiveness	scenario	optimal	comparative
respondent	rise	aggregate	regime	lag
better	transaction	prediction	agriculture	cohesion
fiscal	parameter	publish	volatility	linear
consumption	regression	infrastructure	cue	qualitative
dynamic	entity	portfolio	managerial	identification
coefficient	client	convergence	faculty	statistically
aspect	sustainable	classification	economist	intensity
strategic	republic	equity	profitability	cognitive
correlation	technological	competence	administrative	marginal
criterion	macroeconomic	calculation	allocation	interval
productivity	estimation	payoff	keyword	fertility
empirical	governance	long-term	zero	diminish
organizational	domain	internet	correlate	privatization
equilibrium	methodology	namely	taxation	institute