



When Grammarly Evaluates the Translation Results: A Corpus Linguistics

Mochamad Nuruz Zaman*, Eky Erlanda Edel, Septina Indrayani

Politeknik Negeri Jakarta

*Corresponding author, Email: mzaman@bispro.pnj.ac.id

Paper received: 20-11-2022; revised: 18-02-2023; accepted: 02-03-2023

Abstract: This study investigates the performance of the translation correction tool, Grammarly, in assessing the accuracy of translations; with a descriptive-based qualitative method. The object of this research is the bilingual annual report of PT. Gudang Garam Tbk, which was officially released from the website. Data is collected by analyzing documents and generating data findings. The data is further analyzed by ethnographic methods using domain, taxonomy, componential, and cultural themes. The findings are patterned manually with the classification of translation techniques, which resulted in accurate, inaccurate, and inaccurate translations. This finding reviews the Grammarly evaluating system to assess accuracy so that there are differences between manual analysis and system assessment (translation correction tool). This research contributes to the dynamics of translation learning technology to prioritize manual editing because the system does not have the accuracy to meet industry needs.

Keywords: cognitive development, primary school, cognitive aspects, thinking abilities

1. Introduction

The most important thing in finding an equivalent is to produce the same or almost the same reaction to the reader of the translated text as the reader reacts to the original text. This obstacle must be anticipated if the concept of translation relates to specific terms in a particular field and responds to market needs. Technical terms in this practical context are the lifeblood of translation. The key to the formation of the appropriate word equivalent is only found in the substance of the technical terms. This does translation in specific sectors needed by the market, requiring a very proportional effort to get the lexicon equivalence (Mehmonova, 2022; Nur, 2011: 68). This strategic sector refers to the industrial sector, according to Winardi et al. (2019: 84), the manufacturing industry development sector that has an impact on increasing productivity and reporting should be made openly for transparency to obtain disclosure of administrative reports carried out by companies on a productive level; an international scale.

The written disclosure of administrative reports is linguistically defined as corpus (De Sutter & Lefer, 2020; Laviosa, 2021; Lischinsky, 2011), a collection of texts that are the material for linguistic studies, sourced from written or written speech, then analyzed according to research or study needs using tools (Hisbullah, N. et al.: 2016: 386). Currently, the corpus is identical to a collection of texts as a database that is analyzed systemically using computer technology so that the analysis process is carried out automatically or semi-automatically (Bernardini, 2015), consisting of written and spoken language data and includes various sources of extensive and comprehensive coverage of topics (Baker et al., 2006).

By investigating several preliminary studies, the research has formulated delineation as follows; Sujaini, H. (2018) explained an experimental strategy to improve the quality of the corpus. The Bilingual Evaluation Understudy (BLEU) test resulted in an Indonesian-Malay translation accuracy rate of 6.97% and Indonesian-Javanese 5.55%. The researchers found the

gap that assessment of accuracy does not appear as an indicator of strategy goodness. So that researchers have an opening to develop it through an evaluation of the quality of accuracy assessment. Indrayana D et al. (2016) explored testing the data using Bilingual Evaluation Understudy (BLEU) and linguists by adding the PoS feature; there is an increase in the BLEU value of 0.6% in automated testing and 21.67% in testing by linguists. The researchers observed the gap that the data test does not involve linguistic patterns at the lexicon level, so acceptability still needs to be tested for the next phase. So, researchers can study further at the lexicon level through the acceptability aspect. Abd. Rahman (2020) confirmed acceptance of the term COVID-19 pandemic in the context of translation. The researchers set the gap that the level of acceptance of the translation was not determined and did not discuss accuracy, and was not corpus-based research in this study. Gustari P. (2018) stated that the role of a translator in the manufacturing industry on translate the communication between Chinese technicians and Indonesian technicians at PT. Beijing Dazheng Plastic Indonesia. The researchers framed the gap that the resulting communicative translation method has not been presented in the influence of the assessment. This is due to the translation method produced by a translation technique that contains an instrument assessment.

For this reason, this study will use a multilingual corpus (source and target language) as a corpus-based translation research tool with an accuracy detector called Grammarly. This research will also use the Indonesian language corpus database from the company's annual report in the industrial sector. The focus of the study is to assess the accuracy of the translation of terms related to the industrial sector in the annual report of PT. Gudang Garam Tbk. from Indonesian to English. Based on the background mentioned above, this study will analyze linguistic data and the translation of industrial sector terms in the annual report of PT. Gudang Garam Tbk. Furthermore, the research question in detail is as follows: How does Grammarly evaluate the translation results within the annual report of PT. Gudang Garam Tbk.? Theoretically, it has an impact on scientific contributions in the form of innovations in understanding meaning comprehensively about the accuracy of translation and playing an active role in providing expansion of data analysis with the method of accuracy corpus analysis tool called Grammarly. Practically, this research deserves to be used as new knowledge because it follows the latest literacy issues within industrial translation studies.

2. Method

This study applies a qualitative method with a descriptive approach, namely problem-solving procedures by describing the state of the research object based on the facts that appear as they are (Raco, 2010: 80). By exposing the observed phenomena of specific fields in the form of displaying the translation of the industrial sector. Researchers will investigate in the context of applied linguistics the product translation of these observed phenomena. Observational data is a source of data acquisition that is qualitatively capable of being a reference and foothold in distributing information and evidence of phenomena at the focus of research (Santosa, 2017: 51).

Data are analyzed by an ethnographical method using the domain, taxonomy, componential, and cultural themes. The data sources for this study consist of documents and informants. Documents in the form of a clause in the annual report of PT. Gudang Garam Tbk. Informants selected for their contribution to aspects of the linguistic context and characteristics of translation assessment are linguistic scholars and/or translation raters. Research data is divided into two parts, namely primary and secondary data. Primary data refers to data collected

by researchers from the research location directly. Meanwhile, secondary data refers to data compiled by other researchers to support their studies (Santosa 2017: 52). The data in this study are focused and fixed on the translation of industrial sector terms with characteristic patterns of assessment of translation accuracy and lexicon classification. The process of collecting data that examines documents and archives is content analysis because it explores the content of written or printed information in the mass media (Ardi, 2010: 59). The data collection of this study was carried out by searching for lexicon combinations and entering the desired clause in the searched lexicon. The lexicon search can be done by entering a specific symbol next to an inflection shape in the search box to enter each inflectional form in Grammarly.

The analysis of information in the form of study data is by the review of Siyoto and Sodik (2015: 109), namely a series of study activities, grouping, systematizing, interpreting, and verifying data so that a phenomenon has social, academic, and scientific value. Moves in research data analysis are grouping data based on the frequency or alphabetical lexicon of industrial sector terms on Grammarly (domain), tabulating data (taxonomy), presenting-calculating translation quality-performing assessment calculations for validity tests lexically by comparative (componential), and concluding (cultural theme) according to the problem formulation to obtain lexicon classification and accuracy assessment.

3. Findings and Discussion

The classification in this study is intended to formulate the industrial sector terms contained in the 2020 annual report of PT. Gudang Garam Tbk. The systemic arrangement in this lexicon is according to the standards set by corpus-based translation, namely by dividing things according to classes—systematic preparation to find out linguistic data in this study qualitatively.

Table 1. The lexicon classification of industrial sector terms in the 2020 *annual report* of PT. Gudang Garam Tbk.

No.	Terms of Industrial Sector	Pages
1	The Report of the Board of Commissioners	16-19
2	Management's Discussion of Financial Conditions and Results of Operations	28-37
3	Operations	38-45
4	Corporate Governance	58-77

Four selected classifications of industrial sector terms are contained in the 2020 annual report of PT. Gudang Garam Tbk; The Report of the Board of Commissioners, Management's Discussion of Financial Conditions and Results of Operations, Operations Corporate Governance. Each lexicon is recorded in this sector at the nominal level as datum.

- A. Datum 1 is displayed from the Report of the Board of Commissioners on page 18 within the annual report of PT. Gudang Garam Tbk.

Source language: *Dalam keadaan krisis ini dan dengan mempertimbangkan melemahnya kepercayaan dunia usaha serta kondisi yang penuh dengan ketidakpastian, pada Rapat Umum Pemegang Saham Tahunan, Direksi Perseroan mengambil keputusan untuk tidak membayar dividen agar kondisi keuangan Perseroan dapat tetap optimal. Kami akan terus*

memantau kondisi dengan seksama agar kegiatan operasional dapat tetap berjalan dengan baik, dan memastikan bahwa kami siap beroperasi dengan normal ketika pasar pulih kembali.

Target language: As the crisis developed, the decision was taken by the Board at the Annual General Meeting of Shareholders to not pay out dividend in view of weakening business confidence and general uncertainty, to optimise the financial condition of the Company. We will continue to monitor conditions with caution, in order to sustain current operations and to ensure we are equipped to capitalise on the recovery of our markets.

Target language (after Grammarly): As the crisis developed, the Board decided at the Annual General Meeting of Shareholders not to pay out a dividend because of weakening business confidence and general uncertainty to optimize the company's financial condition. We will continue to monitor states with caution to sustain current operations and to ensure we are equipped to capitalize on the recovery of our markets.

- B. Datum 2 is displayed from the Management's Discussion of Financial Condition and Result of Operations on page 32 within the annual report of PT. Gudang Garam Tbk.

Source language: *Pendapatan penjualan sebesar Rp 114,5 triliun, meningkat 3,6%, dibanding kenaikan sebesar dua digit dalam beberapa tahun terakhir sebelum krisis, dengan penurunan volume penjualan sebesar 6,5% menjadi 89,7 miliar batang. Pangsa pasar Perseroan meningkat dari 25,6% menjadi 26,6% berdasarkan data Nielsen. Kekuatan merek Gudang Garam tidak diragukan lagi telah membawa perubahan, ketika konsumen yang menginginkan produk dengan harga terjangkau menjadi lebih peka terhadap harga, terlihat dari total volume penjualan rokok nasional yang mengalami penurunan hingga 15,1%. Volume penjualan rokok nasional untuk kategori SKM (76,5% dari total volume penjualan rokok) mengalami penurunan 16,4%, dan untuk kategori SKT (19,1% dari total volume penjualan rokok nasional) mengalami penurunan 4,5%.*

Target language: Top line sales revenues of Rp 114.5 trillion represented growth of 3.6 per cent, compared to double digit gains in the past few years before the crisis with total volumes easing by 6.5 per cent to 89.7 billion sticks. Market share improved from 25.6 per cent to 26.6 per cent according to data from Nielsen. Gudang Garam's brand strength has undoubtedly made a difference, as increased price sensitivity in the value priced segments was evident with total national cigarette sales volume declining by 15.1 percent. National sales volumes in the SKM category (comprising 76.5 per cent of the total cigarette sales)

declined by 16.4 per cent, and in SKT (constituting 19.1 per cent of national sales) by 4.5 per cent.

Target language (after Grammarly): Top line sales revenues of Rp 114.5 trillion represented growth of 3.6 percent, compared to double-digit gains in the past few years before the crisis, with total volumes easing by 6.5 percent to 89.7 billion sticks. According to Nielsen's data, market share improved from 25.6 percent to 26.6 percent. Gudang Garam's brand strength has undoubtedly made a difference, as increased price sensitivity in the value-priced segments was evident, with total national cigarette sales volume declining by 15.1 percent. National sales volumes in the SKM category (comprising 76.5 percent of the total cigarette sales) declined by 16.4 percent, and in SKT (constituting 19.1 percent of national sales) by 4.5 percent.

- C. Datum 3 is displayed from the Operations on page 38 within the annual report of PT. Gudang Garam Tbk.

Source language: *Berdasarkan data riset Nielsen, volume penjualan rokok nasional turun 15,1% menjadi 219,3 miliar batang pada tahun 2020. Kecenderungan konsumen beralih ke merek rokok dengan harga lebih murah telah berlangsung sejak tahun lalu akibat menurunnya daya beli konsumen di segmen yang berpenghasilan lebih rendah. Penurunan permintaan rokok terjadi di semua kategori. Volume penjualan sigaret kretek mesin rendah tar nikotin (SKM LTN) turun 27,1% menjadi 57,9 miliar batang. Sedangkan volume penjualan segmen sigaret kretek mesin full flavour (SKM FF) turun 9,4% menjadi 110,0 miliar batang, namun masih bertahan sebagai segmen pasar terbesar dengan pangsa pasar 50,1%. Sementara volume penjualan di segmen sigaret kretek tangan (SKT) mengalami penurunan terkecil, 4,5% menjadi 41,8 miliar batang atau 19,1% dari total volume penjualan rokok nasional, sementara volume penjualan rokok putih turun 29,2% menjadi 9,6 miliar batang, dengan pangsa pasar kurang dari 5%.*

Target language: Total cigarette industry volume in Indonesia declined in 2020 by 15.1 per cent to 219.3 billion sticks according to Nielsen market research data. The trends towards value-priced brands continued from the previous year as buying power, particularly among the lower end, came under pressure. All categories experienced a decline. Low tar nicotine machine made kretek (SKM LTN) declined by 27.1 per cent to 57.9 billion sticks, with full flavour machine made kretek (SKM FF) dropping by 9.4 per cent to 110.0 billion sticks but retaining its position as the leading category with a 50.1 per cent share of the entire cigarette

market. The smallest volume decline, by 4.5 per cent, was in hand rolled kretek (SKT) to 41.8 billion sticks representing 19.1 per cent of the market while white cigarettes declined 29.2 percent to 9.6 billion sticks, less than 5 per cent of total industry volume.

Target language (after Grammarly): Total cigarette industry volume in Indonesia declined in 2020 by 15.1 percent to 219.3 billion sticks, according to Nielsen market research data. The trends towards value-priced brands continued from the previous year as buying power, particularly among the lower end, came under pressure. All categories experienced a decline. Low tar nicotine machine-made kretek (SKM LTN) declined by 27.1 percent to 57.9 billion sticks, with entire flavor machine-made kretek (SKM FF) dropping by 9.4 percent to 110.0 billion posts but retaining its position as the leading category with a 50.1 percent share of the entire cigarette market. The smallest volume decline, by 4.5 percent, was in hand-rolled kretek (SKT) to 41.8 billion sticks representing 19.1 percent of the market. White cigarettes declined 29.2 percent to 9.6 billion posts, less than 5 percent of total industry volume.

- D. Datum 4 is displayed from the Corporate Governance on page 64 within the annual report of PT. Gudang Garam Tbk.

Source language: *Direksi melaksanakan tugas dengan penuh tanggung jawab, itikad baik dan kehati-hatian untuk kepentingan Perusahaan sesuai maksud dan tujuan Perusahaan. Direksi melaksanakan kewajiban untuk membuat rencana kerja tahunan yang memuat anggaran tahunan Perusahaan untuk tahun buku yang akan datang dan menyerahkan laporan keuangan Perseroan kepada akuntan publik untuk diaudit. Direksi berkewajiban menyelenggarakan RUPS tahunan dan RUPS lainnya dan melakukan pelaporan mengenai pengelolaan Perseroan dalam bentuk laporan tahunan kepada RUPS. Direksi berwenang mewakili Perseroan, mengikatkan Perseroan dengan pihak lain serta menjalankan segala tindakan untuk kepentingan Perseroan. Direksi terikat oleh Kode Etik.*

Target language: The Board of Directors (BoD) shall perform tasks with full responsibility, good faith and prudence for the interest of the Company according to the purpose and objective of the Company. The BoD is obliged to prepare an annual action plan that includes the Company's annual budget for the coming fiscal year and to submit the financial statement of the Company to the public accountant to be audited. The BoD is required to hold the Annual GMS and any Extraordinary GMS, as required and is accountable to the GMS in the form of the annual report. The BoD is authorized to represent the Company, to bind the Company

with other parties and carry out any action for the interest of the Company. It is bound by a Code of Ethics.

Target language (after Grammarly): The Board of Directors (BoD) shall perform tasks with full responsibility, good faith, and prudence for the interest of the Company according to the purpose and objective of the Company. The BoD is obliged to prepare an annual action plan that includes the Company's annual budget for the coming fiscal year and submit the company's financial statement to the public accountant to be audited. The BoD is required to hold the Annual GMS and any Extraordinary GMS as needed and is accountable to the GMS in the form of the annual report. The BoD is authorized to represent the Company, bind the Company with other parties and carry out any activity in the interest of the Company. A Code of Ethics secures it.

Datum 1 consists of one source language and two target languages. The first target language is qualitatively evaluated by Grammarly with the result: six alerts of correctness, five clarity, and one bit bland of engagement. Six alerts of correctness are one adding an article, one fixing an agreement mistake, two removing the comma, and two changing the spelling. Five clarities are two changing the wording, two re-paraphrasing sentences, and one rewriting sentences. One bit bland of engagement is choosing a synonym. Datum 1 indicates just right delivery and all good style guide. When the first target language is quantitatively evaluated by Grammarly, the score performance is 51. Meanwhile, after being entirely corrected by Grammarly, the second target language demonstrates a score of 99. The quantitative difference in the performance score between before and after is 48. Systemically, the first translation shows less accurate than the second one. Based on the interview between researchers and linguistic scholars (translation rater), the first translation denotes most of the meaning of the source language has been accurately transferred into the target language, but there are still distortions of meaning that interfere with the integrity of the message. Yet, the second translation (evaluated by Grammarly) testifies the meaning of the source language is accurately transferred into the target language: there is absolutely no distortion of meaning. The instrument information of accuracy is adapted from Nababan. MR, et al.

Datum 2 consists of one source language and two target languages. The first target language is qualitatively evaluated by Grammarly with the result: fourteen alerts of correctness and one unclear of clarity. Fourteen alerts of correctness are eight changing the spelling, two adding a hyphen, three adding a comma, and one adding a period. One clarity is one re-paraphrasing sentence. Datum 1 indicates a very engaging, just right delivery and all good style guide. When the first target language is quantitatively evaluated by Grammarly, the score performance is 46. Meanwhile, after being entirely corrected by Grammarly, the second target language demonstrates a score of 99. The quantitative difference in the performance score between before and after is 43. Systemically, the first translation shows less accurate than the second one. Based on the interview between researchers and linguistic scholars (translation rater), the first translation denotes most of the meaning of the source language has been

accurately transferred into the target language, but there are still distortions of meaning that interfere with the integrity of the message. Yet, the second translation (evaluated by Grammarly) testifies the meaning of the source language is accurately transferred into the target language: there is absolutely no distortion of meaning. The instrument information of accuracy is adapted from Nababan. MR, et al.

Datum 3 consists of one source language and two target languages. The first target language is qualitatively evaluated by Grammarly with the result: fourteen alerts of correctness and two bits bland of engagement. Fourteen alerts of correctness are eight changing a spelling, two adding a comma, three adding a hyphen, and one adding a period. Two bits bland of engagement are two choosing a synonym. Datum 3 indicates just right delivery and all good style guide. When the first target language is quantitatively evaluated by Grammarly, the score performance is 48. Meanwhile, after being entirely corrected by Grammarly, the second target language demonstrates a score of 100 (great job). The quantitative difference in the performance score between before and after is 52. Systemically, the first translation shows less accurate than the second one. Based on the interview between researchers and linguistic scholars (translation rater), the first translation denotes most of the meaning of the source language has been accurately transferred into the target language, but there are still distortions of meaning that interfere with the integrity of the message. Yet, the second translation (evaluated by Grammarly) testifies the meaning of the source language is accurately transferred into the target language: there is absolutely no distortion of meaning. The instrument information of accuracy is adapted from Nababan. MR, et al.

Datum 4 consists of one source language and two target languages. The first target language is qualitatively evaluated by Grammarly with the result: six alerts of correctness, two clarity, and two bits bland of engagement. The six alerts of correctness are three adding a comma, one fixing the infinitive, one replacing the word, and one changing preposition. Two clarities are one re-pharaphrasing sentence and one rewriting in active sentence. Two bits bland of engagement are two choosing a synonym. Datum 1 indicates just right delivery and all good style guide. When the first target language is quantitatively evaluated by Grammarly, the score performance is 68. Meanwhile, after being entirely corrected by Grammarly, the second target language demonstrates a score of 100 (great job). The quantitative difference in the performance score between before and after is 32. Systemically, the first translation shows accurate equal with the second one. Based on the interview between researchers and linguistic scholars (translation rater), the first translation and the second translation (evaluated by Grammarly) testifies the meaning of the source language is accurately transferred into the target language: there is absolutely no distortion of meaning. The instrument information of accuracy is adapted from Nababan. MR, et al.

4. Conclusion

The corpus in applied language studies, namely the focus area of translation, is needed to accurately inform the behavior of each language unit from the level of phonemes, morphemes, words, and phrases, to sentences, including the relationship between elements and their meanings. The corpus provides an empirical database of prominent natural discourses, so the analysis results are based on established structures. The corpus will give the researcher confidence in the conclusion because it presents empirical data, especially data related to translation. This aspect is theoretically applied to answer the research question regarding the translation's accuracy in the annual report of PT. Gudang Garam Tbk. access to Grammarly aids

as an accuracy detection system. Practically, Grammarly evaluates the translation results by demonstrating alerts of correctness, clarity, and engagement. In the end, this research has its own competitiveness for the innovation of the English Translation curriculum for vocational higher education that has strategic value in answering industrial needs.

References

- Ardi, Havid. (2010). *Analisis Teknik Penerjemahan dan Kualitas Terjemahan Buku "Asal-Usul Elite Minangkabau Modern: Respons terhadap Kolonial Belanda Abad Ke XIX/XX"*. Published Thesis. UNS Digital Library.
- Baker, P., Hardie, A., & McEnery, T. (2006). *A Glossary of Corpus Linguistics*. Edinburgh: Edinburgh University Press.
- Bernardini, S. (2015). Translation. In D. Biber & R. Reppen (Eds.), *The Cambridge Handbook of English Corpus Linguistics* (pp. 515-536). Cambridge: Cambridge University Press.
- De Sutter, G., & Lefer, M. A. (2020). On the need for a new research agenda for corpus-based translation studies: A multi-methodological, multifactorial and interdisciplinary approach. *Perspectives*, 28(1), 1-23.
- Gustari, Puji. (2018). *Efisiensi Penggunaan Metode Komunikatif Bahasa Mandarin pada bidang Industri Manufaktur di PT. Beijing Dzaheng Plastic Indonesia*. Published Internship Report. UNS Digital Library
- Hisbullah N., Fazlurrahman, dan Fauziah, F. (2016). Linguistik Korpus dalam Kajian dan Pembelajaran Bahasa Arab di Indonesia. *Prosiding Konferensi Seminar Bahasa Arab II*. Malang: Universitas Negeri Malang.
- Indrayana, D, dkk. (2016). Meningkatkan Akurasi pada Mesin Penerjemah Bahasa Indonesia ke Bahasa Melayu Pontianak dengan Part of Speech. *Jurnal Edukasi dan Penelitian Informatika (JUSTIN)*. Vol. 3, No. 1, 2016.
- Laporan Tahunan. (2020). *Laporan Tahunan 2020*. Kediri: PT. Gudang Garam Tbk. [Website]. <https://www.gudanggaramtbk.com/en/investor/> browsed on pada 13 April 2022 in the search of "annual report"
- Laviosa, S. (2021). *Corpus-based translation studies: theory, findings, applications*. Brill.
- Lischinsky, A. (2011). In times of crisis: A corpus approach to the construction of the global financial crisis in annual reports. *Critical Discourse Studies*, 8(3), 153–168. <https://doi.org/10.1080/17405904.2011.589231>
- Mehmonova, Y. (2022). Lexico-grammatical resources of functional equivalence in the translation of texts from english into uzbek. *ЦЕНТР НАУЧНЫХ ПУБЛИКАЦИЙ (buxdu. uz)*, 14(14).
- Nababan, M.R., Nuraeni, A., & Sumardiono. (2012). Model Penilaian Kualitas Terjemahan. *Jurnal Kajian Linguistik dan Sastra*, 24(1), 39-57.
- Nur, Muhammad. (2011). Istilah Teknis dan Permasalahannya dalam Penerjemahan. *Mabasan: Jurnal Ilmiah Bahasa & Sastra*, 5 (1). <https://doi.org/10.26499/mab.v5i1.200>
- Raco, R.J. (2010). *Metode Penelitian Kualitatif: Jenis, Karakteristik dan Keunggulannya*. PT. Gramedia Widiasarana Indonesia.
- Rahman, Abd. (2020). Keberterimaan Istilah-Istilah di Masa Pandemi Covid-19. *Jurnal Bidar*, 10(2), December 2020 (68–82)
- Santosa, Riyadi. (2017). *Metode Penelitian Kualitatif Kebahasaan*. UNS Press.
- Siyoto, S. dan Sodik, A. (2015). *Dasar Metodologi Penelitian*. Literasi Media Publishing.
- Sujaini, H. (2018). Peningkatan Akurasi Penerjemah Bahasa Daerah dengan Optimasi Korpus Paralel. *JNTETI*, 7(1),
- Winardi, et.al. (2019). Peranan Kawasan Industri dalam Mengatasi Gejala Deindustrialisasi. *Jurnal Ekonomi dan Pembangunan Indonesia*, 19(1) January 2019: 84–95