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Appendices - The Evolution of the Indonesia-China Relationship Post Covid-19

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Appendix 1: Respondents' ID and position descriptions

Respondent ID	Position
R1	Indonesian senior economist and former politician
R2	Think tank department director
R3	Southeast Asia analyst/academic
R4	Southeast Asia analyst
R5	Senior Indonesian diplomat and China specialist
R6	Former Australian diplomat
R7	Former political staffer, Minister of Maritime Affairs and Fisheries, Republic of Indonesia
R8	Australian Professor of Southeast Asian Politics
R9	Human Rights Watch, Indonesia
R10	Indonesian university lecturer
R11	Indonesian Assistant Professor in International Relations
R12	Indonesian China specialist/academic
R13	Senior Research Fellow, East and Southeast Asia specialist
R14	Author and Journalist
R15	Associate Professor and Southeast and East Asia specialist
R16	Executive Director of Indonesian Economics think tank
R17	Indonesia-based freelance journalist covering Indonesia, Timor-Leste, Taiwan and Chinese culture in Southeast Asia
R18	Research Fellow, Adjunct Lecturer in Political Science and International Studies
R19	Indonesia specialist and analyst
R20	Indonesian former China-based journalist and correspondent; Associate Fellow and Fellow at several think tanks
R21	Indonesian journalist and think tank co-founder
R22	Australia-based Indonesian academic of economics
R23	French Ambassador; Southeast and East Asia specialist
R24	Indonesian academic; Belt and Road Initiative specialist
R25	Indonesian journalist (regional security and defence)
R26	Indonesian researcher; China specialist

R27	Indonesian lecturer in International Relations; Politics/Security analyst
R28	Indonesian Associate Research Fellow; Strategic & Defence Studies specialist
R29	Senior research fellow; former Indonesian diplomat
R30	Indonesian Associate Research Fellow; Strategic & Defence Studies specialist

Appendix 2: Index Methodology

The *Indonesia-China Geopolitical and Military Posture Index 2016-2020* (the index) was constructed by closely following the Organisation for Economic Co-operation and Development's (hereafter OECD) *Handbook on Constructing Composite Indicators* (see OECD 2008). The OECD's handbook outlines a 10-step 'checklist for building a composite indicator', which greatly informed the construction of the index (OECD 2008:20). These 10 steps are:

1. the development of a theoretical framework;
2. the data selection process;
3. the imputation of missing data;
4. multivariate analysis;
5. data normalisation;
6. weighing and aggregation;
7. uncertainty and sensitivity analysis;
8. analysis of the impact of individual datapoints on the overall results;
9. testing for correlation with other indicators; and
10. the visualisation of the results.

In the sections below, the steps taken to develop the index are detailed in full. Our approach to each of the OECD's 10 steps is outlined to address common concerns of index transparency raised by the OECD (OECD 2008).

Our methodology has been reviewed by Senior Research Fellow Dr Mohammadreza Mohebbi (Deakin University), and externally by Associate Professor Graham Hepworth from the University of Melbourne Statistical Consulting Centre, economist Alyssa Leng (formerly from the Lowy Institute and currently based at the Development Policy Centre, Australian National University), and Susannah Patton (Lowy Institute). All have prior experience in either index development or statistical modelling, and all provided constructive criticism that guided the production and refinement of our methodology. The accompanying dashboard embodies step 10 of the OECD process.

1. Theoretical framework

The index proffers six broad dimensions deemed significant to the Indonesia-China relationship, that fall within the paradigm of structural realist and Chinese constructivist approaches to gaining power: the Political, Economic, Cultural, Biomedical, Technological, and Military dimensions. These six dimensions were selected after an extensive literature review of academic and professional soft literature on the factors shaping the Indonesia-China relationship and form the basis of the index's theoretical framework. Furthermore, each of these broad dimensions are underpinned by theory drawn from a multitude of academic disciplines, including politics, economics, development, and international relations.

Structural realism, also known as neo-realism, frames power as the most important factor in international relations. Here, the concept of 'offensive realism' is foregrounded, embedded in the notion that China seeks power and influence to achieve security through hard power and hegemony (Waltz 1979; Lobell 2017), using a 'carrot and stick approach' in its engagement with its neighbours (Li 2015). This approach ties in with ideational considerations, namely how China views its place in both the region and wider world. China frames its rise to power in civilisational terms and, in the constructivist sense, seeks to build new norms and frameworks that directly displace established international institutions. This index is consequently centred on the contestation of power through both hard and soft power mechanisms. Below, the specific theories that underpin each of the six dimensions is outlined.

The Political dimension draws on rational choice and resource allocation theory. Notwithstanding more contemporary criticisms of rational choice theory in international relations scholarship, it is arguable that China's highly calculated, systematic actions as an emerging superpower might be understood within this paradigm. As Snidal (2013:88) writes, this is built on the premise 'that states are the key actors, that they seek goals such as power or wealth and that they are relatively effective at pursuing their interests'. This includes non-Western states, including China (Moody 2008). Rational choice theory is premised on the existence of rational actors. This definition is necessarily broad but captures the exacting manner in which the Chinese state has sequentially worked toward attaining power. We take a similarly broad definition of politics as 'power', grounded in control over the allocation of sparse resources. To this extent, the classic definition of politics as 'Who Gets What, When, How' (Lasswell 2012) offers a complementary frame of analysis centred on the competition for control of distributive mechanisms. These theories frame China's political activities in Indonesia as centred on the increase of Chinese state power.

The Economic dimension is underpinned by both developmentalism and growth imperative theories. The selection of these theories has been supported by the results of the interview process: a common theme highlighted by interview respondents was the Jokowi administration's prioritisation of the economic dimension of the Indonesia-China relationship, particularly rapid Chinese investment in large-scale infrastructure projects (**R6, R18, R4, R14**). Developmentalism may be understood as the idea that the task of the state is to achieve fast development 'to overcome backwardness and catch up with the advanced countries' (Feith 1982:502). It is arguable that over the past 15 years, Indonesia's economic planning has become increasingly developmentalist in orientation, becoming the defining feature of its economy (Warburton 2018).

The Cultural dimension is grounded in the theory of soft power and social exchange theory. Soft power is defined as 'the ability to affect others to obtain the outcomes one wants through attraction rather than coercion or payment' (Nye Jr 2008:94). Nye further notes that 'without underlying national credibility, the instruments of public diplomacy cannot translate cultural resources into the soft power of attraction'. This ties into 'reception theory', a sociological approach that explores how audiences decode cultural production (Hall 1973). Efforts to shape Indonesian public opinion are not passively experienced, but rather actively 'encoded' by members of the public based on their particular set of experiences. Their perception of Chinese credibility plays an important role in this process.

The Technological dimension relies on a theory of exogenous growth. Technology is widely considered a key driver of economic growth, yet when a country lacks the capacity, due to low levels of Research and Development (R&D) investment and resources to develop new technologies, it must turn outward. It is here that exogenous technologies and expertise, imported into Indonesia from China – whether they be scientific, engineering, or information technology – play an important role in stimulating local development. They remain controlled, however, by the external actor. External technology acquisition has an 'inverted U-shaped relationship with subsequent technology innovation performance', which leads to increased dependency on firms providing this external technology (Kang, Jo and Kang 2015:35). One respondent reflected scepticism surrounding Indonesia's capacity to achieve domestic growth in the technology sector, supporting the choice of exogenous growth as a theoretical underpinning of this indicator (**R21**).

The Biomedical dimension relies on the nascent theoretical lens of vaccine diplomacy. The Chinese origins of Covid-19 are believed to have damaged China's international image, necessitating a rapid response from the Chinese state (Kobierecka 2022). In the context of Covid-19, vaccine diplomacy 'is a natural extension of Chinese soft power', with vaccines 'not only used for image repair and for expanding Beijing's great power ambitions, but to reinforce and leverage existing soft power programs' (Lee 2021). For those indicators that predate vaccine diplomacy, the broader concept of soft power has inspired their inclusion.

The inclusion of the Biomedical dimension was inspired by the unfolding impact of the Covid-19 pandemic, the temporal significance of Indonesia's reliance on Chinese medical imports, and the emerging significance of vaccine diplomacy. While peer-reviewers raised concerns that the inclusion of this dimension may potentially lead to overstating the significance of Indonesia and China's biomedical relationship pre- and post-Covid, this risk was deemed acceptable in the pursuit of measuring Covid's impact on the relationship in full. The bulk of the weighting of the Biomedical dimension was allocated to measuring vaccine diplomacy, meaning index results for the years before and after vaccine diplomacy is measured will not be significantly skewed by the dimension's inclusion in the index. For the 2016-2020 index, the original results, and the results that exclude the Biomedical dimension, have a statistically significant correlation coefficient of 0.99, indicating that the dimension has a benign impact on the overall score in the pre-Covid years. It is probable that the inclusion of vaccine diplomacy in the 2021 data will lead to an increase in the impact of the Biomedical dimension on the overall results, but this is deemed acceptable given the transparency of the weighting process and reported significance of vaccine diplomacy reported by some interviewees (**R21, R30, R13, R18, R14, R26**).

Finally, the Military dimension was developed with reference to both structural realism and Sun Tzu's *The Art of War*. Structural realism was selected due to China's focus on becoming a 'leading world power' by 2049 (US Department of the Army 2021), and *The Art of War* was selected as many believe it to be influential in shaping contemporary Chinese military strategy in the exercise of both soft and hard power (Ota 2014; US Department of the Army 2021). While of secondary importance, this assisted in the consideration of components and indicators for measurement. Specifically, *The Art of War* framing is useful when interpreting China's actions in the South China Sea: incursions have had a negative impact on the bilateral relationship and been met with Indonesian resistance, with seemingly no tangible strategic benefit being afforded to China (**R6, R19**). China, here, seems to be ignoring Sun Tzu's strategic advice that 'supreme excellence consists in breaking the enemy's resistance without fighting', and that 'when able to attack, we must seem unable' (Tzu n.d.).

Each dimension is informed by a group of two to five components, that is, sub-groups that demonstrate the trajectory of these dimensions on a more nuanced level. Lastly, each component is informed by several indicators: individual datapoints taken from the database that show the trajectory of each component on a micro scale (see appendix 3 for further detail on the theoretical framework and indicators). The components and indicators were selected based on their relevance to the aforementioned theoretical frameworks, reviews of other composite indicators in the fields of international relations and politics, further analysis of the aforementioned academic literature, and due to the convenience and availability of data.

2. Data selection

The index relies on a broad array of data, from a variety of sources. Where possible, reputable existing datasets were adopted (e.g., World Bank WITS (World Integrated Trade Solution), UN Digital Library, ASEANStats Data Portal, and the Lowy Institute). For other indicators, the research team compiled its own data based on publicly accessible websites (source labelled as 'bespoke' in the below table). In some instances, data had to be manually gathered and added to the database, making automation of these indicators not possible, i.e., requiring manual maintenance.

While some data is available for 2021, a high percentage of datapoints would have to rely on imputation for this year to be included in the index. The high number of imputed datapoints would render 2021 results unreliable, and thus undermine the overall quality of the index. The index's automation algorithm, however, will automatically add 2021 data for around 70% of the indicators when the data becomes available.

Some datasets chosen did not require the imputation of missing data, while imputation was necessary for some indicators (see section 3. Imputation of missing data). Given the longitudinal nature of the

index, we sought out datasets that covered the term of the index (2016-2020), but not all indicators ultimately covered the entire period. Indicators were chosen for their relevance to the theoretical framework, as well as their availability. A summary table highlighting the dimension, component, theory, availability, source, and type of indicator, as well as whether imputation was used for the indicator (see OECD 2008), is available in appendix 3. Please note, the 'Type' column was omitted, given that all indicators are considered 'Hard' data.

3. Imputation of missing data

As outlined above, in order to minimise reliance on imputation, as much data covering the full term of the index as possible was collected. Imputation was nevertheless necessary in some instances and missing values were imputed using XLSTAT statistical software, through which multiple imputation (MCMC) was conducted. The XLSTATS algorithm works as follows:

Initial values of the missing values are obtained via a normal distribution sampling with mean and standard error equal to the mean and standard error obtained on available data.

For each variable of the dataset with missing values, an imputation method based on sampling and OLS regression is applied. The model used is a regression model with the studied variable as dependent variable and all the other variables as independent variables. Disturbance using data sampled from different distributions are also used. New imputed values are obtained using this model.

These two steps are repeated until the number of imputation is reached. The average value of each imputed missing value is taken. Alternatively, mean substitution was also implemented as a means of sensitivity analysis (see 7. Uncertainty and sensitivity analysis).

One difficulty in the imputation process was the impact of Covid-19 on one indicator. Imputation for 'Tourist Flows from Indonesia' reported a slight increase from 2019 to 2020, despite the well-known impact of Covid-19 on international travel. The imputation for this indicator was interpolated by the same percentage as a thematically similar indicator. The same percentage decrease between 2019 and 2020 from 'Tourist Flows from China' was applied to the imputed result of 'Tourist Flows from Indonesia', as non-imputed data were available for 'Tourist Flows from China' that reflected the expected downward trend in this indicator. All other imputed values for 2020 were lower than those in 2019, an expected result given the impact of Covid-19.

Imputation was required for 18 of 200 individual indicator datapoints (9%). Five of the 18 imputed indicators are sourced from the World Bank's WITS, which will be updated when the 2020 data are made available in the coming months. The inclusion of this official data will reduce the percentage of imputed indicators from 9% to 6.5%.

4. Multivariate analysis

As a means of conducting multivariate analysis, we elected to perform Cronbach's alpha testing on the index's dimensions and components to ensure a consistent data structure. Cronbach's alpha testing was chosen on the advice of Dr Mohammadreza Mohebbi and Dr Matteo Vergani (Deakin University), as the relatively small size of our dataset rendered alternatives like Principal Component Analysis either impossible or meaningless. Cronbach's alpha testing was conducted on the full dataset using XLSTATS statistical software, with constants and datapoints with missing values excluded from the test. The standardised Cronbach's alpha results for each dimension are listed in Table One.

Table One: Dimension Cronbach's alpha scores

Dimension	Cronbach's alpha	Consistency
Political	0.560	Moderate
Economic	0.770	Strong
Cultural	-5.493	None
Technological	0.917	Strong
Biomedical	0.931	Strong
Military	-1.398	None

The results here indicate that the data structures for the Political, Economic, Technological and Biomedical dimensions proved to be either moderately or strongly consistent, making the grouping together of indicators in these dimensions methodologically defensible. The Cultural and Military dimensions, however, proved to be inconsistent under testing on a dimension level. This warranted further analysis of their data structure.

The Military dimension data were broken down to a component level and subjected to further Cronbach's alpha testing. Given the small number of indicators in both the 'Defence Strategy and Policy' and 'Indonesian Military Procurement' components, and the fact that the removal of constants further reduced the available number of datapoints, indicators from these components were combined and tested. The results from the testing are as follows:

Table Two: Military components Cronbach's alpha scores

Component(s)	Cronbach's alpha	Consistency
Defence Strategy and Policy/Indonesian Military Procurement	0.438	Borderline Moderate
Regional Strategy and Border Disputes	0.999	Strong

When broken down to a component level, the Military dimension indicators become consistent and methodologically defensible. 'Regional Strategy and Border Disputes' is strongly consistent, and the indicators from 'Defence Strategy and Policy' and 'Indonesian Military Procurement' are borderline moderately consistent, despite representing two separate components.

With regard to the Cultural component, Cronbach's alpha testing was completed on a component level, demonstrating a lower level of inconsistency than the dimension level:

Table Three: Cultural components Cronbach's alpha scores

Component	Cronbach's alpha	Consistency
Educational Exchange	0.457	Borderline Moderate
Cultural Exchange	-0.187	None
Media Coverage	0.249	Weak

'Educational Exchange' and 'Media Coverage' are demonstrated to be borderline moderate and weakly consistent, respectively. 'Cultural Exchange', on the other hand, still proves to be inconsistent. Despite

some consistency issues in the Cultural component, it was decided that the inclusion of all components and indicators was still important for the purposes of this index. The biggest consistency issues are present in the 'Cultural' dimension, which is the hardest concept to represent with quantitative data, insofar as it relies on a disparate group of indicators. This conceptual difficulty likely contributes to the inconsistency in this dimension. Furthermore, it was assumed that the differing impact of Covid-19 on individual indicators may have increased the level of inconsistency in the data. This is demonstrated by the difference in the Cultural dimension's Cronbach's alpha score if calculations between year ranges 2016-2020 and 2016-2019, which are compared in Table Four.

Table Four: Cultural dimension Cronbach's alpha, 2016-2020 v 2016-2019

Year Range	Cronbach's alpha
2016-2020	-5.493
2016-2019	0.236

The drastic reduction in inconsistency with the exclusion of 2020 indicates that Covid-19 has had a pronounced impact on the 'Cultural' dimension, thus a portion of the dimension's inconsistency can be fairly attributed to Covid-19's varied impacts on cultural indicators.

5. Normalisation

Given the wide variety of individual indicator formats, it was necessary to normalise the dataset. We used Microsoft Excel to apply min-max normalisation to the imputed dataset from (see 'Index Results' spreadsheet). Min-max normalisation is a commonly used statistical normalisation technique that has grown in popularity given its simplicity and robustness. While this method can expose the index to statistical outliers (see OECD 2008), min-maxing the data on a scale of 0-100 makes the visualisations more intuitive and accessible to a layperson, which arguably outweighs the risks of sensitivity to outliers. The following formula was implemented to produce the min-max scores:

$$I_{qc}^t = \frac{x_{qc}^t - \min_c(x_q^{t_0})}{\max_c(x_q^{t_0}) - \min_c(x_q^{t_0})} \times 100$$

Min-maxing was applied to each indicator across the five-year period (2016-2020). The lowest value in this range was given a value of 0, the largest a value of 100, and the rest a relative value on a scale of 0-100. Table Five provides an example, representing the raw and normalised data for the 'Official dialogues/elite interactions' indicator.

Table Five: Example of raw v min-maxed data

	2016	2017	2018	2019	2020
Raw	78	57	70	43	26
Min-Maxed	100	59.62	84.62	32.69	0

As a means of sensitivity analysis, the data were also normalised using z-score normalisation (see 'Index Results' spreadsheet). The following formula was implemented via Microsoft Excel to achieve this normalisation:

$$I_{qc}^t = \frac{x_{qc}^t - x_{qc = \bar{c}}^t}{\sigma_{qc = \bar{c}}^t}$$

6. Weighting and aggregation

The index has undergone a thorough weighting process to represent the relative significance of each dimension and component of the Indonesia-China relationship. Given the depth and breadth of knowledge possessed by interview respondents, a participatory weighting model was chosen for the dimension and component weighting processes, drawing the weightings from a group of qualified survey participants. Both the Analytical Hierarchy Process (AHP) and Budget Allocation Process (BAP) were considered as options (*see* Greco et al. 2019; OECD 2008), with the BAP being selected as the preferred method.

Under the BAP, stakeholders are requested to allocate ‘a ‘budget’ of N points, to be distributed over a number of individual indicators, ‘paying’ more for those indicators whose importance they want to stress’ (Jesinghaus *cited in* OECD 2008:32). For this research, the same 30 ‘experts representing a wide spectrum of knowledge and experience’ (OECD 2008:96) who participated in the semi-structured interviews were asked to complete a Qualtrics survey to determine the relative weight of the dimensions and components. Respondents included academics, journalists, think tank analysts, former political staffers, and senior diplomats from Indonesia, Australia, the United States and Europe. This broad spectrum of experts ensured the quality and transparency of the BAP weighting process. Each respondent was asked to complete an online Qualtrics survey, allocating 100 points between the six dimensions, and another 100 points for each set of components that informs each dimension.

The BAP was selected for its relatively short duration, its transparency, the cognitive impact the AHP can have on respondents, and the AHP’s higher computational cost (Ishizaka 2012; OECD 2008). The BAP has been used by the European Commission, the OECD, and the WHO (*see* Greco et al. 2019; OECD 2008). Lastly, the implementation of the BAP and the distribution of the BAP survey was considerably more streamlined from a technical perspective than was possible with the AHP.

The average score for each dimension was rounded to the nearest whole number, and that number was deemed to represent the percentage of influence that dimension has on the Indonesia-China relationship (e.g., the Economic dimension scored an average of 39.17 and was therefore weighted at 0.39, or 39%). The same process was conducted for the weighting of the component of each dimension. A table representing these weighting scores from the BAP survey is available in appendix 4.

The decision was made to give individual indicators equal weighting by default, primarily to prevent bias (*see* OECD 2008) and to avoid exacerbating the potential impact of indicator data becoming unavailable in future iterations of the index. Weighting individual indicators differently exposes the index to a heightened risk of indicator data becoming unavailable and skewing future results.

7. Uncertainty and sensitivity analysis

The index weighting underwent sensitivity analysis, via several methods. First, the results of the weighting survey were used to test the impact of different respondent groups on the index weighting. Survey respondents were grouped based on their nominated occupations (academic, journalist, military personnel, policymaker, politician, think tank researcher, other and prefer not to say were survey options given to our participants). Twelve identified as ‘academics’, five as ‘journalists’, five as ‘think tank researchers’, one as a ‘policymaker’, and one as ‘other’.

Excluding academics from the survey results had the biggest impact on the weighting output, but this did not have a significant impact on the weighting structure. By excluding academics, the weighting percentages shifted by a maximum of 2.91% (academics attributed 2.91% more weight to the Economic dimension than the total population), with a mean impact of just 0.374%. The mean difference in indicator weighting excluding all participant groups was 0.00067%. Applying this altered weighting to the

data does not reveal a dramatic change in the index's results and reveals the same overall trends as the original weighting.

Furthermore, an unweighted version of the index was produced as a means of performing additional sensitivity analysis, where all dimensions and components were given the same weighting value. The unweighted results are very similar to the weighted results, with the exclusion of 2020 (see Table Six). Unweighted and weighted results from 2016 to 2019 have a positive correlation coefficient of 0.99, while the full range of 2016 to 2020 has a positive correlation coefficient of 0.96.

Table Six: Weighted v Unweighted overall index results

	2016	2017	2018	2019	2020
Weighted	23.19	46.46	51.23	62.01	51.41
Unweighted	26.58	45.27	48.71	59.52	58.19

The change in results in 2020 is heavily influenced by the Biomedical dimension. The weighted Biomedical results for 2020 give an output of 34, while the unweighted results give an output of 100 (see Table 7).

Table Seven: Weighted v Unweighted biomedical dimension results

	2016	2017	2018	2019	2020
Weighted	2.34	3.50	6.40	10.57	34
Unweighted	6.90	10.31	18.84	31.09	100

The low weighting of the Biomedical dimension, particularly the 'Public Health Cooperation' component, accounts for the stability between 2019 and 2020 in the weighted results relative to the unweighted results (see 6. Weighting and aggregation). The weighting process has allowed for the index to capture the significant Biomedical dimension, without allowing this dimension to unduly influence the results of the index. Nevertheless, there is a strong positive correlation of 0.96 between the weighted and unweighted results of the index. This suggests that, despite the impact of the Biomedical dimension on the 2020 results, the trends have not been adversely affected to any significant degree by the applied weighting process.

Z-score normalisation was also applied to the raw data, which were then subjected to the same weighting process as the min-maxed data. The outputs of this led to similar results as the min-maxed data, with a statistically significant correlation of 0.99 between the overall results for both methods. This provides confidence that the use of min-max normalisation has not resulted in undue errors.

Individual indicators were excluded from the computation of the overall results to measure their overall impact on the index. The overall results of the index were not significantly affected by this process. The elimination of the indicator 'BRI infrastructure projects in Indonesia' had the largest impact on the index results. This led to the overall results having a statistically significant positive correlation of 0.96 with the full index results. This indicator's more pronounced impact is due to it being part of the 'Growth Imperative' component, paired with the indicator 'Number of Chinese Workers in Indonesia'. As the 'Number of Chinese Workers in Indonesia' indicator is seen to have a negative impact on the Indonesia-China relationship, the exclusion of the 'BRI infrastructure projects in Indonesia' makes this negative impact more pronounced, leading to a greater impact on the overall results. Nevertheless, none of the individual indicators demonstrate a significant impact on the overall results, demonstrating the robustness of the index and its weighting process.

Finally, mean substitution imputation was implemented as an alternative means of imputation, to test the robustness of the multiple imputation used in the index's final results. The results using each imputation method share a positive correlation coefficient of 0.99, indicating that the results of the index are not significantly affected by the imputation method.

All means of conducting sensitivity analysis detailed above indicate that alternative weighting, imputation, and normalisation methods have relatively benign impacts on the overall results of the index. The largest discrepancy, arising from the removal of the weighting regime, though still demonstrating a strong positive correlation between the weighted and unweighted results, did have an impact on the overall trend of the data, significantly reducing the downward turn in 2020 demonstrated in the weighted index's results. This is not viewed as a significant issue, due to the strong correlation between the weighted and unweighted results, and the fact that this arises from the transparent weighting process applied to the index, rather than a deeper structural issue with the data.

8. Back to the data

The following section comprises a deconstruction of the index results, which seeks to demonstrate the overall trends of the index, and to delineate the indicators, dimensions, and components that informed the index results. The normalised dataset and the raw dataset are available in appendix 4 and 5 respectively.

Overall findings

The index results between 2016 and 2019 revealed a steep upward trajectory. The negative impact of Covid-19 on Indonesia-China political and cultural ties, however, as well as heightened tensions in the South China Sea in 2020, had a negative impact on the Military component. Similarly, the contraction of economic ties meant that the overall relationship deteriorated between 2019 and 2020.

Table Eight: Index component results

Component	Weight	2016	2017	2018	2019	2020
Bilateral Diplomatic Interactions	0.58	62.50	62.59	65.88	34.01	17.50
Multilateral Diplomatic Alignment	0.42	0.00	100.00	66.56	76.02	14.35
Investment Strategy Cooperation	0.35	0.00	39.55	51.54	75.00	98.36
Bilateral Trade	0.34	13.58	46.38	64.03	86.29	65.01
Growth Imperative	0.31	50.00	44.74	35.00	50.00	41.59
Educational Exchange	0.33	8.54	31.70	65.11	87.50	53.49
Cultural Exchange	0.36	41.94	79.51	76.74	64.52	46.32
Media Coverage	0.31	75.00	27.16	15.76	28.15	46.39
IT Infrastructure	0.51	16.67	0.00	33.33	100.00	66.67
Technological Cooperation	0.49	0.00	31.81	88.33	97.76	87.63
Vaccine Diplomacy	0.66					
Public Health Cooperation	0.34	6.90	10.31	18.84	31.09	100.00
Defence Strategy and Policy	0.26	50.00	50.00	25.00	25.00	75.00
Regional Strategy and Border Disputes	0.56	0.00	96.33	98.24	100.00	30.52
Indonesian Military Procurement	0.18	100.00	76.92	7.69	0.00	11.54

Table Nine: Index dimension results

Dimension	Weight	2016	2017	2018	2019	2020
Political	0.18	36.25	78.30	66.16	51.65	16.17
Economic	0.39	20.12	43.48	50.66	71.09	69.42
Cultural	0.11	41.17	47.51	54.00	60.83	48.71
Technological	0.11	8.50	15.58	60.28	98.90	76.94
Biomedical	0.11	2.34	3.50	6.40	10.57	34.00
Military	0.1	31.00	80.79	62.90	62.50	38.67

Table Ten: Index overall results

	Weight	2016	2017	2018	2019	2020
Overall	na	23.19	46.46	51.23	62.01	51.41

Political dimension findings

Weighted at 0.18, survey respondents deemed the Political dimension the second most significant index dimension. It contributed strongly to the overall trend of the index, demonstrated by its sharp rise from 2016 to 2017, and sharp decline between 2019 and 2020. Despite the dimension demonstrating a downward trend from 2017 onwards, the significant reduction in indicators between 2019 and 2020 that make up 'Bilateral Diplomatic Interactions', such as 'State/Ministerial visits', can be attributed to the impact of Covid-19 on international travel and countries shifting their focus to combating the virus, rather than conducting diplomatic activities.

Economic dimension findings

Survey respondents deemed the Economic dimension by far the most significant dimension, attributing it a weighting of 0.39. The Economic dimension demonstrated an upward trajectory between 2016 and 2019, and a slight decline between 2019 and 2020. Sharp reductions in 'Trade Growth with China', 'Import Dependence on China', and 'BRI infrastructure projects in Indonesia' have contributed to the flattening of the Economic dimension's trajectory, all of which were directly affected by Covid-19.

Cultural dimension findings

Weighted at 0.11, the Cultural dimension is the first of the dimensions weighted ~0.1 (the weighting range of all but the Economic and Political dimensions). The Cultural dimension demonstrated a steady upward trajectory between 2016 and 2019, and a significant drop in 2020. Sharp drops across many of the indicators, including 'Scholarship Opportunities for Indonesian Students', both Indonesian and Chinese tourist flows, 'Value of Imported Books, Newspapers and Print Media' and a drop in Indonesian 'Public Attitudes Towards China' contributed to this drop. Again, Covid-19 contributed significantly to this dimension's reduction between 2019 and 2020, as travel restrictions affected travel and trade between the two countries.

Technological dimension findings

Weighted at 0.11, the Technological dimension followed the same trend as the Cultural and Economic dimensions, namely an upward trajectory between 2016 and 2019, and a sharp decline between 2019 and 2020. The components 'IT Infrastructure' and 'Technological Cooperation' both peaked in 2019, but then technology imports and investments experienced a decline due to the pandemic.

Biomedical dimension findings

Weighted at 0.11, the Biomedical dimension showed a steady but relatively benign upward trajectory between 2016 and 2019, and a threefold increase between 2019 and 2020. This can be attributed to all indicators from the ‘Public Health Cooperation’ component achieving their highest results in 2020, as Indonesia responded to Covid-19 by drastically increasing the trade of medical supplies with China. The Biomedical dimension’s structural break involving the vaccine diplomacy component is yet to have its impact measured, as Indonesia did not begin to receive vaccines until 2021 (future iterations of the index will include this information). Given that vaccine diplomacy was weighted at 0.66 of the Biomedical dimension, it is anticipated that the impact of vaccine diplomacy on the relationship in 2021 will be significant.

Military dimension findings

Receiving the lowest weighting of 0.1, the military component defies the overall trends of the index. Contrary to most other components, ‘Indonesian Military Procurement’ has significantly reduced from peak levels in 2017, with 2019 to 2020 demonstrating a much lower score than 2017 to 2018. The ‘Regional Strategy and Border Disputes’ component – weighted at 0.56 of the Military dimension – has had the most significant impact on the dimension, with both its indicators demonstrating a deterioration of the Indonesia-China relationship. Chinese incursions into Indonesia’s North Natuna Sea (South China Sea) have driven the trajectory of this component, leading to the Military dimension peaking during the period 2017 to 2019, with the bookends of 2016 and 2020 and their associated South China Sea incursions undermining the quality of the Military dimension of the Indonesia-China relationship. Furthermore, the reduction in the number of military procurements Indonesia has sought from China since 2016 has helped drive the downward trajectory of this dimension.

9. Links to other indicators

Given the assumed relationship between China’s power and its ability to exert influence over other states (see 1. Theoretical Perspective), the results of the index were compared with the Lowy Institute’s *Asia Power Index* (API) measurement of China’s overall power. The API and this index do not cover the same period, meaning that the results from each between 2018 and 2020 were tested for correlation as this year range is covered by both indexes. The indexes share a weak positive correlation of 0.41 in that year range.

Table Eleven: Index correlation with Asia Power Index

	API	Index
2018	74.5	51.23
2019	75.9	62.01
2020	76.1	51.41

Correlation	0.41
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We attribute the slight deterioration of the Indonesia-China relationship in 2020 to the reduction of diplomatic efforts, Chinese incursions in Indonesia’s EEZ in the North Natuna Sea, a reduction in China’s cultural influence, and the plateauing of economic growth (see 8. Back to the Data). Covid-19 contributed significantly to the above trends, save for China’s assertive behaviour in the North Natuna Sea. The API, however, does not record a Covid-influenced decline in Chinese power until 2021, where ‘the country lost ground in half of the Index’s measures of power ... from diplomatic and cultural influence to economic capability and future resources’ (Lowy Institute 2021). This indicates somewhat of a disconnect between the two indexes. If the index results are adjusted to compare the correlation of when they

begin to measure the impact of Covid-19, however, their correlation coefficient increases to 0.75 (correlating the index's results from 2020 with API's from 2021).

Table Twelve: Index correlation with Asia Power Index, adjusted

	API		Index
2018	74.5	2017	46.46
2019	75.9	2018	51.23
2020	76.1	2019	62.01
2021	74.6	2020	51.41

Correlation	0.75
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Lastly, the geometric mean of Indonesia and China's API results were tested against the index's results. This resulted in a strong correlation coefficient of 0.9.

Table Thirteen: Index correlation with Asia Power Index, geometric mean of Chinese and Indonesian power

	API	Index
2018	38.41	51.23
2019	39.54	62.01
2020	38.92	51.41

Correlation	0.9
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The above results demonstrate an expected loose correlation between China's overall power and the depth of its relationship with Indonesia. Most of the indicators included in the index depend on China's ability to exert its influence in each of the six dimensions, all of which are underpinned by its overall power.

10. Visualisation of the results

The index has been visualised via an automated dashboard. Produced in Tableau, the dashboard presents our end-users with an intuitive tool, enabling them to effectively engage with the overall results of the index, as well as to visualise and engage with the index dimensions, components, and individual indicators.

Methodological limitations

Unavoidably, some indicators draw on statistics from less reputable and potentially biased sources. Effort was made to reduce reliance on these datasets, but for some indicators it was impossible to use alternative data. In particular, data from ideologically-aligned think tanks (e.g., 'Belt and Road Infrastructure Projects in Indonesia' data from the American Enterprise Institute) and data from the Chinese Government (e.g., 'Number of Chinese Workers in Indonesia') was used. While there are justifiable concerns about the reliability of data from the Chinese Government (USCC 2013), research has shown that these concerns may be overstated, and that Chinese official statistics still have heuristic value given their use in government decision making, as well as a lack of concrete evidence that they have been manipulated and the unavailability of alternative data sources (Plekhanov 2017; Chow 2006). Furthermore, in the case of the 'Number of Chinese Workers in Indonesia' indicator, the government's

quoted statistics and the trend of the data was consistent with the trends quoted by respondents **(R1, R5)**.

Participatory index weighting methods, such as the BAP, are prone to non-responses from participants. Four respondents opted out of the BAP survey entirely due to time constraints and security concerns, meaning the survey had a response rate of 86.67%. The survey had a final completion rate of 92% due to three respondents not answering the full set of questions. The decision to use the BAP exposed the index to this risk, but the majority of respondents provided answers to the key aspects of the survey and valuable weighting results were nevertheless secured due to their participation.

The use of z-score normalisation was seen as a more robust statistical method, but this exposed the index to interpretability issues. The visualisation of the z-scores may not be as intuitive to the layperson as other normalisation techniques, such as min-maxing (which results in a score between 1 and 100), given z-scores normalise data by allocating a number between -1 and 1. This, as well as the fact that both normalisation methods produced highly correlated final results, meant min-maxing became the preferred normalisation method.

Min-maxing data with such a low number of datapoints in each year range (five datapoints for each indicator) exposed the index to high variability between years. In future iterations of the index, the research team suggests expanding the year range of the index to earlier than 2016. While this might make it impossible to track datapoints for some indicators, it will enable the index to demonstrate a longer trend and mitigate the potential impact of high variability. Extending the year range will have the added benefit of adding statistical weight to all the other calculations in the index.

Appendix 3: Indicator summary table

Indicator/Component	Dimension	Theory	Explanation	Availability	Source	Imputation
Bilateral Diplomatic Interaction						
Official dialogues/elite interactions	Political	Resource Allocation/Rational Choice Theory	Measures the number of dialogues, phone calls and other diplomatic activity listed on the Jakarta Chinese Embassy's website. Indicates the depth of the Indonesia-China diplomatic relationship.	2016-2020	Bespoke (Jakarta Embassy)	No
State/Ministerial visits	Political	Resource Allocation/Rational Choice Theory	Measures the number of state visits listed on the Jakarta Chinese Embassy's website. Indicates the depth of the Indonesia-China diplomatic relationship.	2016-2020	Bespoke (Jakarta Embassy)	No
Frequency of Ambassador's Speeches	Political	Resource Allocation/Rational Choice Theory	Measures the number of speeches given by the Chinese ambassador to Indonesia listed on the Jakarta Chinese Embassy's website. Indicates the depth of the Indonesia-China diplomatic relationship.	2016-2020	Bespoke (Jakarta Embassy)	No
Number of Missions/Embassies/Consulate Generals	Political	Resource Allocation/Rational Choice Theory	Measures the number of Chinese missions, embassies and consulate generals in Indonesia. Indicates the depth of the Indonesia-China diplomatic relationship.	2016-2020	Lowy Institute	No

Indicator/Component	Dimension	Theory	Explanation	Availability	Source	Imputation
Multilateral Diplomatic Alignment						
UN General Assembly Voting alignment	Political	Resource Allocation/Rational Choice Theory	Measures the level of UN vote alignment between Indonesia and China. Indicates the depth of the Indonesia-China diplomatic relationship.	2016-2020	Bespoke (UN Digital Library)	No
UN Security Council Voting alignment	Political	Resource Allocation/Rational Choice Theory	Measures the level of UN vote alignment between Indonesia and China. Indicates the depth of the Indonesia-China diplomatic relationship.	2019-2020	Bespoke (UN Digital Library)	No

Investment Strategy Cooperation						
Bilateral investment treaties/treaties with investment provisions	Economic	Developmentalism/Growth Imperative	Measures the cumulative amount of investment related treaties between Indonesia and China. Indicates the depth of the Indonesia-China investment cooperation.	2016-2020	Bespoke (UNCTAD)	No
FDI flows to Indonesia	Economic	Developmentalism/Growth Imperative	Measures the annual flow of Chinese FDI to Indonesia. Indicates the depth of the Indonesia-China investment cooperation.	2016-2020	National Bureau of Statistics China	No

Bilateral Trade						
Trade Growth with China	Economic	Developmentalism/Growth Imperative	Measures the annual flow of Chinese FDI to Indonesia. Indicates the growth of the Indonesia-China trade.	2016-2019	WITS World Bank	Yes (2020)

Indicator/Component	Dimension	Theory	Explanation	Availability	Source	Imputation
Trade balance with China	Economic	Developmentalism/ Growth Imperative	Measures the trade balance between Indonesia and China. Indicates the growth of the Indonesia-China trade.	2016-2019	WITS World Bank	Yes (2020)
Export Dependence on China	Economic	Developmentalism/ Growth Imperative	Measures the percentage of all Indonesian exports sent to China. Indicates the growth of the Indonesia-China trade.	2016-2019	WITS World Bank	Yes (2020)
Import Dependence on China	Economic	Developmentalism/ Growth Imperative	Measures the percentage of all Indonesian imports received from China. Indicates the growth of the Indonesia-China trade.	2016-2019	WITS World Bank	Yes (2020)
Two-Way Dutiable Goods/Tariffs	Economic	Developmentalism/ Growth Imperative	Measures the percentage of duties/tariffs applied to Indonesia-Chinese trade. Indicates the depth of the Indonesia-China trade.	2016-2019	WITS World Bank	Yes (2020)
Gross Debt to China	Economic	Developmentalism/ Growth Imperative	Measures the annual amount of debt Indonesia owes to China. Indicates Indonesia's dependence on Chinese trade and finance.	2016-2020	The World Bank	No

Growth Imperative						
BRI infrastructure projects in Indonesia	Economic	Developmentalism/ Growth Imperative	Measures the value of Belt and Road Initiative projects in Indonesia each year. Indicates the alliance of the Belt and Road Initiative and Indonesia's growth imperative.	2016-2020	The American Enterprise Institute	No

Indicator/Component	Dimension	Theory	Explanation	Availability	Source	Imputation
Number of Chinese Workers in Indonesia	Economic	Developmentalism/ Growth Imperative	Measures the value of Belt and Road Initiative projects in Indonesia each year. Indicates the alliance of the Belt and Road Initiative and Indonesia's growth imperative, and used as a proxy for the discontent Indonesians feel towards Chinese investment. Negatively impacts the index results.	2016-2020	National Bureau of Statistics China	No

Educational Exchange						
Number of Confucius Institutes (Pusat Bahasa Mandarin, PBM) in Indonesia	Cultural	Social Exchange Theory	Measures the number of Confucius Institutes/PBMs in Indonesia each year. Indicates Chinese influence over Indonesia's education system.	2016-2020	Bespoke (Multiple Sources)	No
Flow of Indonesian international students	Cultural	Social Exchange Theory	Measures the number of Indonesian international students studying in China each year. Indicates Chinese influence over Indonesia's education system.	2016-2017, 2019	Institute of International Education	Yes (2018, 2020)
Scholarship Opportunities for Indonesian Students	Cultural	Social Exchange Theory	Measures the number of Chinese funded scholarship opportunities available to Indonesian university students each year. Indicates Chinese influence over Indonesia's education system.	2017-2020	National Bureau of Statistics China	Yes (2016)

Cultural Exchange						

Indicator/Component	Dimension	Theory	Explanation	Availability	Source	Imputation
Chinese Diaspora in Indonesia	Cultural	Social Exchange Theory	Measures the number of Chinese diaspora present in Indonesia each year. Indicates Chinese cultural influence over Indonesia.	2016-2020	OCAC Taiwan Statistical Yearbook	No
Google Search Interest	Cultural	Social Exchange Theory	Measures annual Indonesian search interest in China. Indicates Chinese cultural influence over Indonesia, used as a proxy to measure the Indonesian population's affinity for Chinese culture.	2016-2020	Google Trends	No
Tourist Flows from Indonesia	Cultural	Social Exchange Theory	Measures the number of Indonesian tourists heading to China annually. Indicates Chinese cultural influence over Indonesia.	2016-2018	National Bureau of Statistics China	Yes (2019, 2020)
Tourist Flows from China	Cultural	Social Exchange Theory	Measures the number of Chinese tourists heading to Indonesia annually. Indicates Chinese cultural influence over Indonesia.	2016-2020	ASEANstats	No
Public Attitudes Towards China	Cultural	Social Exchange Theory	Measures the annual level of positivity the general Indonesian population hold towards China. Indicates Chinese cultural influence over Indonesia.	2017, 2019, 2021 (2021 used to produce more accurate imputation for 2020)	Pew Research (2017 & 2019) & Lowy Institute (2021)	Yes (2016, 2018, 2020)

Media Coverage						

Indicator/Component	Dimension	Theory	Explanation	Availability	Source	Imputation
Searches for Chinese News	Cultural	Social Exchange Theory	Measures annual Indonesian search interest in Chinese news sources. Indicates Chinese media influence over Indonesia.	2016-2020	Google Trends	No
Cultural Imports from China	Cultural	Soft Power	Measures annual Indonesian imports of Chinese cultural goods, including television, news and video game media. Indicates Chinese cultural influence over Indonesia.	2016-2020	WITS World Bank	No
Value of Imported Books, Newspapers and Print Media	Cultural	Soft Power	Measures annual Indonesian imports of Chinese books, newspapers and print media. Indicates Chinese cultural influence over Indonesia.	2016-2020	WITS World Bank	No
Chinese Embassy Press Releases	Cultural	Soft Power	Measures annual number of Chinese embassy press releases. Indicates Chinese media influence over Indonesia.	2016-2020	Bespoke (Jakarta Embassy)	No

IT Infrastructure						
Investment in Tech Businesses and Infrastructure	Technological	Exogenous Growth Theory	Measures number of annual investments in technological R&D, infrastructure and research partnerships between Indonesia and China. Indicates depth of Indonesia-China technological cooperation.	2016-2020	Australian Strategic Policy Institute	No
Technological Cooperation						

Indicator/Component	Dimension	Theory	Explanation	Availability	Source	Imputation
Penetration of Chinese Mobile Brands	Technological	Exogenous Growth Theory	Measures annual percentage of Chinese brands in Indonesian phone sales. Indicates depth of Indonesia-China technological cooperation, used as a proxy to measure the penetration of Chinese technology amongst Indonesian consumers.	2016-2020	StatCounter	No
Technology and Transport Imports	Technological	Exogenous Growth Theory	Measures value of technology and transport imports from China to Indonesia. Indicates depth of Indonesia-China technological cooperation. Note: Inclusion of transport was necessitated by breakdown of WITS categories.	2016-2020	World Banks WITS	No

Vaccine Diplomacy						
Chinese Covid Vaccine Penetration	Biomedical	Vaccine Diplomacy	Measures the number of Covid-19 vaccine doses Indonesia receives from China, including donations and purchases. Indicates the depth of Chinese vaccine diplomacy in Indonesia.	2021 (structural break- not yet reflected in index)	Beijing Bridge	No

Public Health Cooperation						
Imports of Medical Equipment	Biomedical	Soft Power	Measures the annual value of medical equipment imports from China. Indicates the depth of Indonesia's reliance upon China in the delivery of health services.	2016-2020	World Banks WITS	No

Indicator/Component	Dimension	Theory	Explanation	Availability	Source	Imputation
Imports of Pharmaceutical Products (excluding vaccines)	Biomedical	Soft Power	Measures the annual value of pharmaceutical products (excluding vaccines) imports from China. Indicates the depth of Indonesia's reliance upon China in the delivery of health services.	2016-2020	World Banks WITS	No
Imports of Vaccines (ALL)	Biomedical	Soft Power	Measures the annual value of vaccines (including Covid-19 vaccines) imports from China. Indicates the depth of Indonesia's reliance upon China in the delivery of health services. Note: Inclusion of Covid-19 vaccines was necessitated by breakdown of WITS categories.	2016-2020	World Banks WITS	No

Defence Strategy and Policy						
Military Alliance/Cooperative Agreements	Military	Structural Realism	Measures the number of active military alliance/cooperative agreements shared by Indonesia and China in each year. Indicated the level of their defence cooperation.	2016-2018	ATOP data (Rice University)	Yes (2019-2020)
Joint Training Exercises	Military	Structural Realism	Measures the number of joint military training exercised conducted by Indonesia and China in each year. Indicated the level of their defence cooperation.	2019-2021 (2021 used to produce more accurate imputation for 2020)	Lowy Institute	Yes (2016-2018)

Indicator/Component	Dimension	Theory	Explanation	Availability	Source	Imputation
Regional Strategy and Border Disputes						
South China Sea Incursions and Incidents	Military	Structural Realism/The Art of War	Measures the number of reported Chinese incursions into Indonesia's North Natuna Sea (South China Sea) EEZ. Indicates the level of disconnect between Indonesia and China's regional strategy and South China Sea borders.	2016-2020	Bespoke (Crisis Group)	No
Indonesian Public Interest in the South China Sea	Military	Structural Realism/The Art of War	Measures Indonesian public interest in the North Natuna Sea (South China Sea). Indicates the level of disconnect between Indonesia and China's regional strategy and South China Sea borders, used as a proxy for the Indonesian public's discontent towards China over its South China Sea activities.	2016-2020	Google Trends	No

Indonesian Military Procurement						
Indonesia's Military Procurement from China	Military	Structural Realism	Annual value of Indonesian arms imports received from China. Indicates growth in Indonesia's arms procurement from China.	2016-2020	Stockholm International Peace Research Institute	No

Appendix 4: Weighting results

Index dimensions and weightings

Dimension	Weight
Political	0.18
Economic	0.39
Cultural	0.11
Technological	0.11
Biomedical	0.11
Military	0.1

Index Components and weightings

Dimension	Components	Weight
Political	Bilateral Diplomatic Interactions	0.58
	Multilateral Diplomatic Alignment	0.42

Economic	Investment Strategy Cooperation	0.35
	Bilateral Trade	0.34
	Growth Imperative	0.31

Cultural	Educational Exchange	0.33
	Cultural Exchange	0.36
	Media Coverage	0.31

Technological	IT Infrastructure	0.51
	Technological Cooperation	0.49

Biomedical	IT Infrastructure	0.66
	Technological Cooperation	0.34

Military	Defence Strategy and Policy	0.26
	Regional Strategy and Border Disputes	0.56
	Indonesian Military Procurement	0.18

Appendix 5: Full min-maxed data set

Indicator name	2016	2017	2018	2019	2020
Official dialogues/elite interactions	100	59.62	84.62	32.69	0
State/Ministerial visits	100	40.74	88.89	33.33	0
Frequency of Ambassador's Speeches	0	100	40	20	20
Number of Missions/Embassies/Consulate Generals	50	50	50	50	50
UN General Assembly Voting alignment	0	100	66.56	52.05	28.69
UN Security Council Voting alignment				100	0
Bilateral investment treaties/treaties with investment provisions	0	50	50	50	100
FDI flows to Indonesia	0	29.10	53.08	100	96.72
Trade Growth with China	0	56.04	92.53	100	75.21
Trade Deficit/Surplus with China	63.36	100	0	20.78	28.32
Export Dependence on China	0	40.12	67.79	100	60.57
Import Dependence on China	18.14	0	51.16	100	71.40
Two-Way Dutiable Goods/Tariffs	0	43.94	95.45	100	54.55
Gross Debt to China	0	38.21	77.27	96.97	100
BRI infrastructure projects in Indonesia	0	5.78	66.33	100	30.95
Number of Chinese Workers in Indonesia	100	83.70	3.68	0	52.23
Number of Confucius Institutes (Pusat Bahasa Mandarin, PBM) in Indonesia	0	0	50	100	100
Flow of Indonesian international students	0	85.74	45.32	100	60.47
Scholarship Opportunities for Indonesian Students	25.625	9.375	100	62.5	0
Chinese Diaspora in Indonesia	0	82.12	86.59	93.30	100
Google Search Interest	0	22.35	49.75	39.89	100
Tourist Flows from Indonesia	87.73	95.48	100	92.92	0
Tourist Flows from China	69.34	97.58	100	96.48	0
Public Attitudes Towards China	52.63	100	47.37	0	31.58
Searches for Chinese News	100	42.91	0	76.25	80.90
Cultural Imports from China	0	30.30	39.39	36.36	100

Value of Imported Books, Newspapers and Print Media	100	10.44	23.64	0	4.65
Chinese Embassy Press Releases	100	25	0	0	0
Investment in Tech Businesses and Infrastructure	16.67	0	33.33	100	66.67
Penetration of Chinese Mobile Brands	0	50	76.67	96.67	100
Technology and Transport Imports	0	13.61	100	98.85	75.25
Chinese Covid Vaccine Penetration					
Imports of Medical Equipment	0	3.38	34.88	54.63	100
Imports of Pharmaceutical Products (excluding vaccines)	0	3.41	18.18	38.64	100
Imports of Vaccines (ALL)	20.69	24.14	3.45	0	100
Military Alliance/Cooperative Agreements	50	50	50	50	50
Joint Training Exercises	50	50	0	0	100
South China Sea Incursions and Incidents	0	100	100	100	33.33
Indonesian Public Interest in the South China Sea	0	92.66	96.48	100	27.70
Indonesia's Military Procurement from China	100	76.92	7.69	0	11.54

Appendix 6: Full raw dataset

Indicator name	2016	2017	2018	2019	2020	Denomination
Official dialogues/elite interactions	78	57	70	43	26	Number of dialogues/interactions per year
State/Ministerial visits	31	15	28	13	4	Number of visits per year
Frequency of Ambassador's Speeches	1	6	3	2	2	Number of ambassador's speeches per year
Number of Missions/Embassies/Consulate Generals	5	5	5	5	5	Number of Missions/Embassies/Consulate Generals
UN General Assembly Voting alignment	77%	85%	82%	81%	79%	% of vote alignment
UN Security Council Voting alignment				92%	88%	% of vote alignment
Bilateral investment treaties/treaties with investment provisions	2	3	3	3	4	Number of treaties in place
FDI flows to Indonesia	\$ 1,460.00	\$ 1,682.00	\$ 1,865.00	\$ 2,223.00	\$ 2,198.00	Millions (USD)
Trade Growth with China	\$ 16,786.00	\$ 23,049.00	\$ 27,127.00	\$ 27,962.00	\$ 25,191.45	Millions (USD)
Trade Deficit/Surplus with China	-\$ 14,014.00	-\$ 11,471.00	-\$ 18,411.00	-\$ 16,969.00	-\$ 16,445.83	Millions (USD)
Export Dependence on China	11.62%	13.65%	15.05%	16.68%	14.68%	% of exports coming from China
Import Dependence on China	22.71%	21.93%	24.13%	26.23%	25.00%	% of exports heading to China
Two-Way Dutiable Goods/Tariffs	1.36%	1.07%	0.73%	0.70%	1.00%	% of trade with tariffs/duties applied

Indicator name	2016	2017	2018	2019	2020	Denomination
Gross Debt to China	\$1,026.00	\$1,317.10	\$1,614.70	\$1,764.80	\$1,787.90	Gross Debt to China
BRI infrastructure projects in Indonesia	4260	4430.00	6210.00	7200	5170.00	Millions (USD)
Number of Chinese Workers in Indonesia	15433	16363.00	20928.00	21138	18158.00	Number of Chinese workers in Indonesia
Number of Confucius Institutes (Pusat Bahasa Mandarin, PBM) in Indonesia	6	6	7	8	8	Number of institutes in Indonesia
Flow of Indonesian international students	12694	14714.00	13761.85	15050	14118.66	Number of Indonesian international students in China
Scholarship Opportunities for Indonesian Students	91	65	210	150	50	Number of scholarships available to Indonesian students
Chinese Diaspora in Indonesia	9.05	10.52	10.60	10.72	10.84	Million People
Google Search Interest	50.25	58.00	67.50	64.08	84.92	Numbers represent average of search interest in each year, relative to the highest point (100)
Tourist Flows from Indonesia	633700	683100	711900	666753	74385	Indonesian tourists heading to China
Tourist Flows from China	1556771	2093171	2139161	2072252	239768	Chinese tourists heading to Indonesia

Indicator name	2016	2017	2018	2019	2020	Denomination
Public Attitudes Towards China	46%	55%	45%	36%	42%	% of Indonesians with a 'Very Favourable' or 'Somewhat Favourable' view of China (Pew Research) -- Percentage that trust China 'a great deal' and 'somewhat' (Lowy Institute)
Searches for Chinese News	44.83	36.37	30.01	41.31	42.00	Numbers represent average of search interest in each year, relative to the highest point (100)
Cultural Imports from China	\$ 25	\$ 35	\$ 38	\$ 37	\$ 58	Millions (USD)
Value of Imported Books, Newspapers and Print Media	\$ 97,115	\$ 14,202	\$ 26,419	\$ 4,535	\$ 8,839	USD
Chinese Embassy Press Releases	4	1	0	0	0	Number of press releases per year
Investment in Tech Businesses and Infrastructure	7	6	8	12	10	Number of tech-related treaties and investments in Indonesia
Penetration of Chinese Mobile Brands	15%	30%	38%	44%	45%	% of phone sales in Indonesia made up by Chinese brands
Technology and Transport Imports	\$15,391	\$16,393	\$22,753	\$22,668	\$20,931	Millions (USD)

Indicator name	2016	2017	2018	2019	2020	Denomination
Chinese Covid Vaccine Penetration						Doses of Sinovac & Sinopharm vaccine delivered
Imports of Medical Equipment	\$ 99,650	\$ 105,292	\$ 157,880	\$ 190,864	\$ 266,616	Millions (USD)
Imports of Pharmaceutical Products (excluding vaccines)	\$ 36	\$ 39	\$ 52	\$ 70	\$ 124	Millions (USD)
Imports of Vaccines (ALL)	\$ 11	\$ 12	\$ 6	\$ 5	\$ 34	Millions (USD)
Military Alliance/Cooperative Agreements	1	1	1	1	1	Number of active alliances/cooperative agreements
Joint Training Exercises	1	1	0	0	2	Number of exercises per year
South China Sea Incursions and Incidents	3	0	0	0	2	Number of incidents each year
Indonesian Public Interest in the South China Sea	41.5	17.25	16.25	15.33	34.25	Numbers represent average of search interest in each year, relative to the highest point (100)
Indonesia's Military Procurement from China	\$ 40	\$ 34	\$ 16	\$ 14	\$ 17	Millions (USD)

Appendix 7: Chinese investments worth over US\$100 million (2016-2021)

Year	Month	Chinese Firm	Quantity in Millions (USD)	Share Size	Transaction Party	Sector	Subsector	State-owned or Private
2016	March	China State Construction Engineering	\$ 300			Real estate	Construction	State-owned
2016	May	Qianhai Zone Authority	\$ 200			Transport	Shipping	Private
2016	May	State Development and Investment Corp	\$ 120	0.4		Energy	Coal	State-owned
2016	June	Sinosteel	\$ 140		BOSOWA	Energy	Coal	State-owned
2016	August	Sino Great Wall	\$ 230		PT Wanxiang Nickel	Metals		Private
2016	October	Power Construction Corp. (PowerChina)	\$ 250	0.7	PLN	Energy	Coal	State-owned
2016	November	China National Chemical Engineering	\$ 890		Sumber Segara Primadaya	Energy		State-owned
2016	December	Tsingshan Holding	\$ 490		Bintang Delapan	Metals	Steel	Private
2016	December	Harbin Electric	\$ 1,470		Malaysia's YTL	Energy	Coal	Private
2016	December	China National Building Material	\$ 170		PT Semen Baturaja Persero	Real estate	Construction	Private
2017	January	China National Off-shore Oil (CNOOC)	\$ 1,040	0.14		Energy	Gas	State-owned
2017	January	China National Building Material	\$ 230		Indoserena Dwimakmur	Real estate	Construction	Private
2017	February	China Communications Construction	\$ 640			Transport	Rail	State-owned

2017	March	China Fortune	\$ 300			Real estate	Property	Private
2017	March	China Communications Construction	\$ 110			Real estate	Property	State-owned
2017	June	China Nonferrous Metal Mining	\$ 200	0.51		Metals		State-owned
2017	July	Tencent	\$ 150		Go-Jek	Transport	Autos	Private
2017	August	JD.com	\$ 100		Go-Jek	Transport	Autos	Private
2017	August	Alibaba	\$ 500		Tokopedia	Other	Consumer	Private
2017	November	China Communications Construction	\$ 170			Transport	Autos	State-owned
2018	January	China Railway Engineering	\$ 2,460	0.4		Transport	Rail	State-owned
2018	January	Tsingshan Holding	\$ 400	0.57		Metals		Private
2018	January	China Minmetals	\$ 170		Denxin	Metals	Steel	State-owned
2018	January	China Minmetals	\$ 320			Metals	Steel	State-owned
2018	January	China Minmetals	\$ 130			Real estate	Construction	State-owned
2018	March	State Development and Investment Corp	\$ 1,150	0.75		Energy	Hydro	State-owned
2018	March	China Energy Engineering	\$ 120			Energy	Gas	State-owned
2018	May	China Jinjiang Environment	\$ 110	0.95	Indo Green Power	Energy	Alternative	Private
2018	May	Shandong Nanshan Aluminum	\$ 390		Redstone Alumina	Metals	Aluminum	Private
2018	May	China Minmetals	\$ 100			Metals	Aluminum	State-owned
2018	May	Power Construction Corp. (PowerChina)	\$ 100			Energy	Coal	State-owned

2018	August	Power Construction Corp. (PowerChina)	\$ 150		Toba	Energy	Coal	State-owned
2018	September	China GEM-led consortium	\$ 610	0.87	Sulawesi	Metals	Steel	Private
2018	September	Hongshi	\$ 300			Real estate	Construction	Private
2019	January	Tencent, JD.Com	\$ 340		Go-Jek	Transport	Autos	Private, Private
2019	February	Jiangsu Delong	\$ 1,620			Metals	Steel	Private
2019	March	China Minmetals	\$ 180			Metals	Steel	State-owned
2019	April	China Energy Engineering	\$ 460			Energy	Coal	State-owned
2019	April	China National Chemical Engineering	\$ 160			Energy	Gas	State-owned
2019	May	Jiangsu Lianfa	\$ 100	0.5	PT Ungaran Sari Garments	Other	Textiles	Private
2019	July	China Energy Engineering	\$ 440			Energy		State-owned
2019	July	China Energy Engineering	\$ 220			Real estate	Construction	State-owned
2019	August	Chengtun Mining	\$ 150			Metals	Steel	Private
2019	August	China Energy Engineering	\$ 240		Prioritas Gading	Real estate	Construction	State-owned
2019	September	China Minmetals	\$ 140			Metals	Steel	State-owned
2019	October	China Communications Construction	\$ 1,650	0.49	Jasamarga	Transport	Autos	State-owned
2019	November	Zhejiang Huayou Cobalt, China Molybdenum, Tsingshan Holding	\$ 1,240	0.97		Metals	Steel	Private, State-owned, Private
2019	December	Zhejiang Lygend	\$ 600			Metals	Steel	Private
2020	January	Aluminum Corporation of China (Chinalco)	\$ 520	0.75	Aneka Tambang and Asahan	Metals	Aluminum	Private

2020	February	Xiamen Xiangyu	\$ 1,040			Metals	Steel	State-owned
2020	February	Power Construction Corp. (PowerChina)	\$ 480			Energy	Hydro	State-owned
2020	March	Zhejiang Lygend	\$ 530			Metals	Steel	Private
2020	March	Zhefu Holdings	\$ 850	0.53		Energy	Hydro	Private
2020	March	Inner Mongolia Yili Industrial	\$ 140			Agriculture		Private
2020	May	China Railway Engineering	\$ 1,370			Transport	Rail	State-owned
2020	August	China Energy Engineering	\$ 160		Abadi	Metals	Steel	State-owned
2020	November	Nanjing Iron-led consortium	\$ 380	1		Metals	Steel	Private
2020	December	Datang	\$ 390	0.75	Sinarmas	Energy	Coal	State-owned
2021	March	Power Construction Corp. (PowerChina)	\$ 1,360			Energy	Hydro	State-owned
2021	April	CNGR	\$ 170	0.7	Rigqueza	Metals	Steel	Private
2021	April	Boyu Capital, Hillhouse Capital	\$ 1,300		J&T Express	Logistics		Private, Private
2021	June	China Energy Engineering, China Minmetals	\$ 930			Metals	Aluminum	State-owned, State-owned
2021	July	China Risun-led consortium	\$ 250			Metals	Steel	Private
2021	July	Power Construction Corp. (PowerChina)	\$ 110		Masdar	Energy	Alternative	State-owned
2021	September	Chengtun Mining, Tsingshan Holding	\$ 230	0.65	Stellar	Metals	Lithium	Private, Private

2021	September	Tsingshan Holding, Shanghai Huafon	\$ 140			Metals	Aluminum	Private, Private
2021	November	Primavera Capital, Tencent	\$ 100		GoTo (Indonesia)	Other	Consumer	Private, Private
2021	December	Chengtun Mining	\$ 250	0.7	Extension Investment Pte (Singapore)	Metals	Steel	Private

(AEI 2022)

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