Balancing Risk and Reward Who benefits from China's investments in Indonesia?

Technical Appendix

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Appendix A. Data sources summary

Table A-1. Financial inputs analyzed in the report

Variable	Coverage	Source and details
Chinese official development finance	2000-2023	Data on official government-backed loan and grant commitments from the People's Republic of China (PRC). Please note that the data for 2022 and 2023 will be considered to be provisional only. This data likely undercounts the total number of projects committed by the PRC because it relies upon identifying relevant activities from global news databases (Factiva DNA). The relative recency of the projects and the limited scope of this report constrain our ability to cross-verify, given the limited publication of official sources as of 2024. Source: AidData's Global Chinese Development Finance Dataset, Version 3.0 (Custer et al., 2023; Dreher et al., 2022).
Chinese foreign direct investment (FDI)	2010-2023	Compared to Chinese official development finance, these projects involve investors establishing a lasting interest in, and a significant degree of influence over, an enterprise resident in Indonesia, as defined by an ownership stake of 10% or more, according to OECD definitions. Source: fDi Markets, from the Financial Times Ltd. Please note that aggregate sums based on data from fDi Markets differ from those published by BPS-Statistics Indonesia and the Indonesia Investment Coordinating Board. This source was used because it provides project-level details on the sector and geography of FDI project commitments and is structured in a parallel manner to the information captured in AidData's Chinese official development finance dataset. This allows a more direct comparison of year-on-year activity as compared to measures of total FDI stock by year.
Bilateral and multilateral development finance	2000-2023	Data on official government-backed loan and grant commitments for selected donors, including the Asian Development Bank, Australia, the World Bank (via the International Bank for Reconstruction and Development), Japan, South Korea, and the United States. Source: OECD CRS Database, 2000-2023.
Supply-side entities associated with PRC-financed development projects	2000-2023	Supply-side companies, organizations, or agencies involved in one or more forms of financing, co-financing, or implementation of PRC-funded development projects between 2000 and 2023. Sources: AidData's Global Chinese Development Finance Dataset, Version 3.0 (Custer et al., 2023; Dreher et al., 2022); supplemental desk research by the authors for 2022 and 2023 projects.
Entities with questionable business practices	2001-2023	Implementers of PRC-financed development projects that were either directly or indirectly associated with fraud, corruption, coercion, collusion, or obstruction at any time during the period. Direct association means that the firm was directly identified by the World Bank or Asian Development Bank as being placed on its list of sanctioned or

		debarred entities. Indirect association means that the entity's parent or subsidiary was placed on the WB or ADB's list of sanctioned or debarred entities. Sources: World Bank List of Ineligible Firms and Individuals; Asian Development Bank Published Sanctions List; press releases from WB and ADB, as well as third-party news articles on instances of sanctioning.
Demand-side entities associated with PRC-financed development projects	2000-2023	Demand-side companies, organizations, or entities that were named as a direct or indirect recipient of one or more PRC development projects between 2000 and 2023. Actors were identified using two sources: AidData's Global Chinese Development Finance Dataset, Version 3.0 (Custer et al., 2023; Dreher et al., 2022); supplemental desk research by the authors for 2022-2023 projects
Mainland PRC and/or diaspora ownership tie for an individual or company receiving PRC development projects	2000-2023	A demand-side company, organization, or agency receiving PRC development finance between 2000 and 2023 that was identified as being owned (in part or in whole) by a member of the Indonesian-Chinese diaspora community, OR by an individual or company from mainland China. This variable only considers an ownership stake of 10 percent or higher. Ownership was determined through mining publicly available websites, media articles, and proprietary business databases. Mainland Chinese or diaspora connections were identified via supplemental desk research of open-source materials
Mainland PRC and/or diaspora affinity tie based upon the mandate of the individual or company receiving PRC development projects	2000-2023	A demand-side company, organization, or agency receiving PRC development finance between 2000 and 2023 that was identified as having an affinity tie to the PRC through having something in their mandates or public profile that self-identified as teaching the Chinese language, supporting Chinese diaspora communities, or promoting Chinese culture. Affinity was determined by examining institutions' public websites and social media, as well as mining open-source information from third-party media articles and proprietary business databases.
Average days between project stages	2000-2021	Average project delays were calculated from the variables 'Commitment Data (MM/DD/YYYY)', 'Actual Implementation Start Date (MM/DD/YYYY)', and 'Actual Completion Date (MM/DD/YYYY)'. A delay for each project was calculated, and then regional and sector averages were compiled based on these calculated variables. Note: In instances where commitment or completion dates were recorded as missing, AidData staff excluded these figures from averages. Every project recorded a commitment date, but several projects did not include details on actual implementation or completion dates. Therefore, the average commitment to completion times may differ slightly from the sum of the commitment to implementation and the implementation-to-completion dates. Source: AidData's Global Chinese Development Finance Dataset, Version 3.0 (Custer et al., 2023; Dreher et al., 2022).

Suspended or canceled investments	2000-2021	Derived from the 'Status' field. All projects/activities given a status designation of Pipeline: Commitment, Implementation, Completed, Suspended, or Canceled reached the official commitment stage (i.e., a binding, written agreement that governs the provision of financial or in-kind support for a specific purpose was signed by an official sector donor or lender in China and an entity in a recipient country). A project/activity assigned to the "Pipeline: Commitment" category is one that is backed by an official commitment but has not yet entered implementation. A project/activity assigned to the "implementation" category is one that is backed by an official commitment and has begun implementation with financial or in-kind support from the source of the commitment. A project/activity assigned to the "Completion" category is one that is backed by an official commitment and that reached completion with financial or in-kind support from the sources of the commitment. Projects/activities assigned to the "Suspended" and "Canceled" categories are those that were backed by an official commitment but subsequently suspended or canceled. The coding of the "Status" field in the dataset is based on sources that were available as late as August 2023.
ESG risks		Projects that had environmental, social, and governance (ESG) risks in PRC development projects. Source: Methodology adapted from Parks et al. (2023) as applied to the China Global Development Finance Dataset, Version 3.0 (Custer et al., 2023; Dreher et al., 2022). For further definitions and abbreviated methodology, see Appendix B: Environmental, social, and governance criteria definitions.

Table A-2. Leadership approval indicators analyzed in the report

Variable	Coverage	Source and details
Approval of China's leadership	2006-2024	Derived from WP156 'Do you approve or disapprove of the job performance of the leadership of China?' Binary indicator of approval. Coded 1 if the response was "Approve"; 0 if the response was "Disapprove" or "Don't know." "Refused" responses are coded as missing (NA). Gallup World Poll.
Approval of own government leaders	2007-2024	Derived from WP150 'Do you approve or disapprove of the job performance of the leadership of this country?' Binary indicator of approval. Coded 1 if the response was "Approve"; 0 if the response was "Disapprove" or "Don't know." "Refused" responses are coded as missing (NA). Gallup World Poll.

Variable	Coverage	Source and details
Gross Regional Domestic Product, per capita	2010-2023	Per Capita Gross Regional Domestic Product by Province (Thousand Rupiahs, 2010 prices). BPS.
Gross Regional Domestic Product	2010-2023	Gross Regional Domestic Product (Billion Rupiahs, 2010 prices). BPS.
Percentage poor population	2012-2024	Percentage of Poor Population (P0) by Province. BPS.
Unemployment rate by province (Percent)	2000-2024	Unemployment Rate. BPS.
Job Climate Index	2006-2024	Measures public attitudes toward a community's ability to provide economic opportunity, capturing both perceptions of overall economic improvement and local job availability. Gallup World Poll.
Local Economic Confidence Index	2006-2024	Measures individuals' perceptions of their local economy by assessing both current economic conditions and expectations about whether those conditions are improving or worsening. Higher scores indicate greater confidence. Gallup World Poll
Food and Shelter Index	2006-2024	The Food and Shelter Index measures individuals' ability to afford basic necessities, with lower scores reflecting greater reported hardship. Gallup World Poll.

Table A-3. Economic indicators analyzed in the report

Variable	Coverage	Source and details
Normalized Difference Vegetation Index (NDVI)	2000-2020	Yearly Normalized Difference Vegetation Index - NDVI (LTDR v5 - AVHRR). Measures vegetation greenness and density, yearly mean. NASA LAADS DAAC/GeoQuery
Carbon dioxide	2015-2023	OCO-2 (v11.1r) - CO2 Concentration (yearly). The average concentration of carbon dioxide in a column of dry air extending from Earth's surface to the top of the atmosphere. The raster used is the result of aggregating one year of data to a 10km grid and then using a linear interpolation to fill gaps. The underlying data were produced by NASA's OCO-2 project and obtained from the OCO-2 data archive maintained at the NASA Goddard Earth Science Data and Information Services Center. NASA/GeoQuery
Air quality	2006-2024	Respondent reports Dissatisfaction with air quality, DKs, and Refused coded as NAs. Gallup World Poll.
Water quality	2006-2024	Respondent reports Dissatisfaction with water quality, DKs, and Refused coded as NAs. Gallup World Poll.

Variable	Coverage	Source and details			
Health insurance, PBI	2017-2021	Percentage of Population with Health Insurance - BPJS Kesehatan (PBI). BPS.			
Democracy Index	2021-2023	Indonesia Democracy Index by Province (combined). ¹ BPS.			
Democratic Institutions Capacity Index	2009-2020	Democratic Institutions Capacity Index by Province (combined). BPS			
Is Indonesia a democracy?	2011, 2016, 2019, 2021	Asks if Indonesian respondents think their country is a democracy. We recode perceptions of regime type into a binary indicator. Respondents who described their country as a "full democracy" or "a democracy with minor problems" are coded as democratic (1), while those indicating "a democracy with major problems" or "not a democracy" are coded as non-democratic (0); all other responses are excluded from analysis. AsianBarometer.			
Civic Engagement Index	2006-2024	Assesses respondents' inclination to volunteer their time and assistance to others. It is designed to measure a respondent's commitment to the community where he or she lives. Gallup World Poll.			
Human Development Index	2000-2022	Subnational Human Development Index (SHDI) is a translation of the UNDP's official HDI (hdr.undp.org) to the subnational level. The SHDI is an average of the subnational values of three dimensions: education, health, and standard of living. Global Development Lab (GDL).			
Youth Development Index	2006-2024	Measures a community's focus on the welfare of its children. This index includes general measures of development of youth and respect for youth, along with satisfaction with the educational system. Gallup World Poll.			
Corruption Index (GWP)	2006-2024	The Corruption Index measures perceptions in a community about the level of corruption in both business and government. Higher scores indicate that a greater share of respondents perceive corruption as widespread. The index is based on two survey			

Table A-5. Social and governance indicators analyzed in the report

¹ Following Lubis et al. (2024), we combine these two indices, which, while estimated using different methods, yield scores on a common scale. Although this approach is not without limitations, it offers a practical solution. We encourage future research to assess the validity and implications of this strategy.

		items: "Is corruption widespread within businesses located in (country), or not?" (WP145) and "Is corruption widespread throughout the government in (country), or not?" (WP146). At the individual level, responses indicating that corruption is widespread are coded as 1; all other responses—including "Don't know" and "Refused"—are coded as 0. If a respondent has no valid answer for one of the items, that item is excluded from their index score; if both are missing, no score is calculated. The individual index score is the mean of the valid items multiplied by 100. The country-level index is the weighted average of all individual scores for respondents with valid data on both items, using Gallup's country weights. Gallup World Poll.
Subnational corruption	2000-2022	The Subnational Corruption Database (SCD) provides the levels of total (Subnational Corruption Index; SCI), grand, and petty corruption for 1,473 subnational regions within 178 countries. Grand perceptions and petty experiences are predominantly at the household level, sourced from 13 different organizations using 807 different surveys, in total. The data are available from 1995 to 2022. The SCI is available in two forms. The Baseline SCI only offers information in the years in which household surveys are available for a particular subnational area. These baseline data are most appropriate for (academic) research. The Comprehensive SCI uses methods of estimation, interpolation, and extrapolation to arrive at a full series for each area. These comprehensive data are most appropriate for descriptive purposes or within-year comparisons. Global Development Lab (GDL).

Appendix B. Environmental, social, and governance criteria definitions

As adapted from Parks et al. (2023), the environmental safeguards criteria used in this report consider whether there is/are: (i) environmental clauses or conditions included in the agreement; (ii) a requirement to conduct an environmental impact assessment (EIA); (iii) a requirement to develop an environmental management plan (EMP); (iv) a requirement to report to the lender on implementation of EIA recommendations or the status of the EMP; (v) environmental conditions precedent for entry into force or disbursements; (vi) specifications that noncompliance of environmental rules, standards or laws is a sufficient basis to demand early repayment of the loan or cancel the loan; (vii) a requirement for the borrower to indemnify the lenders or guarantors against any loss or liability as a result of a breach of environmental law or standard; and (viii) a requirement to comply with international environmental standards.

As adapted from Parks et al. (2023), the social safeguards criteria consider whether there is/are: (i) social clauses or conditions in the agreement; (ii) a requirement to conduct an environmental and social impact assessment (ESIA); (iii) a requirement to develop an environmental and social action plan (ESAP), a resettlement action plan (RAP), or the functional equivalent; (iv) a requirement for the borrower to report to the lender on its implementation of the ESIA recommendations or RAP; (v) social conditions set as precedent for entry into force or disbursement; (vi) specifications that violating social standards/laws is a sufficient basis to demand early repayment of the loan or cancel the loan; and (vii) a requirement for the borrower to indemnify the lenders against any loss or liability as a result of a breach of a social law or standard.

As adapted from Parks et al. (2023), the governance safeguards criteria consider whether there is/are: (i) governance clauses or conditions included in the agreement; (ii) a requirement for independently audited financial statements; (iii) a requirement that the borrower's financial statements comply with International Financial Reporting Standards; (iv) competitive bidding requirements; (v) a requirement that bidding documents or bid evaluation reports be subject to prior approval by the lender; (vi) requirements regarding anti-corruption or anti-money laundering; (vii) a requirement to indemnify lenders, guarantors, or insurers against any loss or liability through the breach of a governance law or standard; (viii) the right for the lender to prevent or investigate anti-corruption or anti-money laundering crimes; (ix) the borrower affirms that it will seek to ensure the proceeds from the loan or grant are not used to finance or benefit any internationally sanctioned entity, (x) the agreement specifies that noncompliance with governance rules, standards, or laws constitutes sufficient basis for the lender to demand early repayment ("prepayment") or cancel the loan, and (xi) the agreement includes competitive

bidding, anti-corruption, or anti-money laundering conditions precedent for entry into force, initial disbursement, or ongoing disbursements.

Appendix C. Supplemental tables for Chapter 2

Table C-1. Total official finance commitments by major development partners to Indonesia in millions of 2024 USD, 2000-2023

Year	PRC	Asian Development Bank	Australia	World Bank (IBRD)	Japan	South Korea	United States
2000	0.00	445.74	188.77	0.00	694.64	0.00	410.65
2001	0.00	1,566.98	246.10	857.64	2,385.27	0.00	292.03
2002	0.28	599.88	189.70	55.05	520.17	0.00	374.64
2003	1,767.80	793.87	341.49	423.37	3,446.36	0.00	300.72
2004	413.84	583.80	165.92	864.31	1,374.21	0.00	237.17
2005	232.06	559.47	331.39	1,093.94	1,917.01	0.00	833.71
2006	3,672.60	1,059.24	567.25	972.84	1,288.84	318.42	538.22
2007	1,237.02	1,271.73	132.05	1,048.66	1,631.19	213.32	341.06
2008	2,653.06	1,117.21	1,115.42	1,917.90	1,259.51	497.05	261.79
2009	7,817.74	2,578.67	1,079.62	4,559.59	1,457.10	374.60	286.88
2010	789.67	460.76	953.41	3,482.61	1,049.79	621.45	390.19
2011	2,237.26	564.11	442.30	2,621.82	512.39	1,323.16	321.74
2012	2,028.05	1,632.35	580.75	4,234.98	115.26	2,080.08	308.02
2013	4,625.37	839.36	588.16	1,396.66	633.15	717.54	897.88
2014	1,821.75	928.27	500.77	1,195.89	747.60	760.23	188.26
2015	11,401.68	1,748.26	502.79	634.12	1,518.65	3,140.02	261.42

2016	6,066.50	2,139.41	373.82	2,318.97	69.68	3,325.32	239.98
2017	8,528.25	2,542.87	294.46	1,723.21	2,237.94	781.71	294.66
2018	2,924.29	2,507.82	337.53	2,043.83	801.48	381.33	182.38
2019	2,361.88	1,926.66	276.06	2,645.03	437.36	155.26	240.65
2020	2,275.50	4,075.58	247.13	1,486.89	1,948.35	89.62	189.04
2021	853.14	1,890.61	367.06	3,333.74	604.86	419.49	192.13
2022	1,726.68	2,218.90	234.73	2,923.41	888.96	418.15	135.79
2023	4,184.02	2,590.10	246.13	5,825.85	1,802.62	69.24	254.06

Notes: The amounts are denominated in millions of USD, Constant 2024 dollars. Sources: OECD CRS Database, 2000-2023 and AidData's Global Chinese Development Finance Dataset, Version 3.0 for 2000-2021 (Custer et al., 2023; Dreher et al., 2022). The research team supplemented PRC finance with limited desk research and media article reviews to identify additional projects and details for 2022 and 2023.

Table C-2. Top Bilateral or Multilateral Development Partner to Indonesia in Total Official Finance Commitments, by Year, 2000-2023

Year	Leading donor	Total Commitments Constant USD Billions 2024
2000	Japan	0.69
2001	Japan	2.39
2002	Asian Development Bank	0.60
2003	Japan	3.45
2004	Japan	1.37
2005	Japan	1.92
2006	China	3.67
2007	Japan	1.63
2008	China	2.63
2009	China	7.82
2010	World Bank	3.48
2011	World Bank	2.62
2012	World Bank	4.23
2013	China	4.63
2014	China	1.82
2015	China	11.40
2016	China	6.07
2017	China	8.53
2018	China	2.92
2019	World Bank	2.65
2020	Asian Development Bank	4.08
2021	World Bank	2.33
2022	World Bank	2.92
2023*	World Bank	5.83

Notes: The amounts are denominated in millions of USD, Constant 2024 dollars. Source: OECD CRS Database, 2000-2023 and AidData's Global Chinese Development Finance Dataset, Version 3.0 for 2000-2021 (Custer et al., 2023; Dreher et al., 2022). PRC finance was supplemented by limited desk research and media article review by the research team to identify additional projects and details for 2022 and 2023. The 2022 data is provisional and additional projects may be added or dropped in the future, as more extensive information becomes available.

Table C-3. Inbound Chinese and global FDI by sector in Indonesia, 2010-2024

Sector	All source capex, billions of constant 2024 USD	China capex, billions of constant 2024 USD	China capex percent
Aerospace	0.48	0.01	1%
Automotive components	2.14	0.03	1%
Automotive OEM	18.69	2.42	13%
Biotechnology	0.54	0.00	0%
Building materials	5.90	2.23	38%
Business machines and equipment	1.56	0.00	0%
Business services	2.85	0.12	4%
Ceramics and glass	1.66	1.03	62%
Chemicals	43.32	1.17	3%
Coal, oil and gas	67.72	7.14	11%
Communications	10.10	1.63	16%
Consumer electronics	1.12	0.00	0%
Consumer products	5.78	0.05	1%
Electronic components	31.07	8.84	28%
Engines and turbines	0.07	0.00	0%
Financial services	5.23	0.17	3%
Food and beverages	13.51	1.25	9%
Healthcare	0.35	0.00	0%
Hotels and tourism	10.84	2.13	20%
Industrial equipment	1.79	0.65	36%
Leisure and entertainment	1.34	0.00	0%
Medical devices	0.18	0.00	0%
Metals	83.47	41.55	50%
Minerals	12.06	11.78	98%
Non-automotive transport OEM	1.91	0.16	8%
Paper, printing and packaging	2.75	0.17	6%
Pharmaceuticals	0.48	0.14	30%

Plastics	2.13	0.26	12%
Real estate	34.65	6.14	18%
Renewable energy	22.81	2.11	9%
Rubber	8.62	2.09	24%
Semiconductors	0.05	0.00	0%
Software and IT services	2.55	0.12	5%
Space and defence	0.06	0.00	0%
Textiles	4.00	0.08	2%
Transportation and warehousing	10.84	0.48	4%
Wood products	0.19	0.18	95%

Notes: This table shows the sectors for (i) total inbound Chinese FDI and (ii) FDI from all sources, including China, in Indonesia from 2010 through 2024. FDI dollars represent capital expenditures (capex) in billions of 2024 USD. Sources: fDi Markets, from the Financial Times Ltd.

Name	Status	Investment	Capacity	Location	PRC financing	Information
PT QMB New Materials	Operational	US\$ 998 million	50,000-kt	Morowali, Central Sulawesi	N/A	Established in October 2018 as joint-venture between Tsingshan Holding Group (10%), GEM (63%), CATL (10%), ECOPRO (9%) and Hanwa (8%)
Huayue Nickel and Cobalt (HNC)	Operational	US\$ 1.28 billion	70,000-kt	Morowali, Central Sulawesi	Yes	Established in October 2018 as joint-venture between Zhejiang Huayou Cobalt Co.,Ltd., China Molybdenum Co.,Ltd., serta Tshingshan Holding Group
PT Halmahera Persada Lygend	Operational	US\$ 1.6 billion	65,000-kt	Obi Island, North Maluku	No	Established in 2018 as a joint-venture between Indonesia's Harita Group and Lygend Resource & Technology. Operational in 2018.
PT Teluk Metal Industry (TMI)	Operational	US\$ 1.26 billion	60,000-kt	Morowali, Central Sulawesi	N/A	Tsingshan Group
PT Fajar Metal Industry (FMI)	Under Construction (2025)	US\$ 1.26 billion	60,000-kt	Morowali, Central Sulawesi	N/A	Tsingshan Group
PT ESG New Energy Material (2025)	Operational	US\$ 1.6 billion	30,000-kt	Morowali, Central Sulawesi	No	Joint-venture between Merdeka Battery Materials Tbk (55%) and GEM Co., Ltd (45%) - use 3rd Gen HPAL -
PT Meiming New Energy Material	Operational	N/A	25,000-kt	Morowali, Central Sulawesi	N/A	Developed by GEM Co., Ltd. (87.5%) and, Merdeka Battery Materials (12.5%)
CATL-Merde ka Batteries HPAL Project	Feasibility Studies (end 2027)	N/A	N/A	Konawe, South Sulawesi	N/A	Joint-venture between Merdeka Battery Materials Tbk (66%) and CATL (34%) -

Table C-4. List of planned and operational HPAL smelters in Indonesia

PT Sulawesi Nickel Cobalt (SLNC)	Under Construction (mid-2026)	US\$1.8 billion	90,000-kt	Morowali, Central Sulawesi	No	Joint-venture between Merdeka Battery Materials Tbk (50,1%) and Zhejiang Huayou Cobalt Co.,Ltd (49.9%)
PT Kolaka Nickel Indonesia (KNI)	Under Construction (2026)	US\$3.8 billion	120,000- kt	Kolaka, Southeast Sulawesi	No	Joint Venture between Vale Indonesia (18,3%), Ford Motors (8.5%) and Zhejiang Huayou Cobalt Co.,Ltd (73.2%)
Sambalagi HPAL Project	Under Construction	US\$ 1.4 billion	60,000-kt	Morowali, Central Sulawesi	N/A	Joint Venture between Vale Indonesia (30%) and GEM Co., Ltd. (70%)
Vale Indonesia HPAL Project at Sorowako Block	Under Developmen t	US\$ 1.86 billion	60,000-kt	Sorowako, East Luwu, South Sulawesi	N/A	Joint Venture between Vale Indonesia and Zhejiang Huayou Cobalt Co.,Ltd
Tanamalia HPAL	Feasibility Studies	N/A	N/A	N/A	N/A	Vale Indonesia
Excelsior	Under					Joint Venture between
(ENC)	Construction (2025)	US\$ 1.76 billion	72,000-kt	Morowali, Central Sulawesi	<u>No</u>	Nickel Industries Limited (ASX) (55%) & Shanghai Decent Investment (Group) Co., Ltd (45%)
PT Blue Sparking Energy Tbk.	Under Construction (2025) Under Construction (2026)	US\$ 1.76 billion US\$ 580 million	72,000-kt 67,000-kt	Morowali, Central Sulawesi Central Halmahera Regency, North Maluku	<u>No</u>	Nickel Industries Limited (ASX) (55%) & Shanghai Decent Investment (Group) Co., Ltd (45%) PT Harum Energy Tbk.

Source: Desktop research compiled from various sources.

Appendix D. Supplemental tables and figures for Chapter 3

Branches and subsidiaries

The goal of Chapter 3 is to uncover the networks, scale, and diversity of actors (Chinese, Indonesian, and others) involved in PRC-funded development projects in Indonesia. To this end, we aggregate various branches of institutions, quantifying the number of projects and associated project funds to approximate the true impact of an institution. The aggregations that we used in the report are listed in Table D-1. Some of the aggregations also reflect the different names of an entity in the underlying data, for example, Indonesia Eximbank is also known as PT Indonesia Eximbank.

Name	Branches and Subsidiaries included
Industrial and Commercial Bank of China (ICBC)	ICBC Indonesia ICBC Asia
Bank of China (BOC)	Bank of China (Jakarta Branch) Bank of China (Hong Kong) Limited (BOCHK) BOC Singapore branch
China Construction Bank Corporation (CCB)	PT Bank CCB Indonesia
China CITIC Bank Corporation Limited	China CITIC Bank International Limited (formerly CITIC Ka Wah Bank)
Sumitomo Mitsui Banking Corporation	Sumitomo Mitsui Banking Corporation Group (SMBC Group) Sumitomo Mitsui Banking Corporation (SMBC) Sumitomo Mitsui Indonesia Sumitomo Mitsui Trust Bank Limited (SMTB)
DBS Bank	PT Bank DBS Indonesia DBS Bank Ltd. Bank DBS Indonesia Development Bank of Singapore (DBS)
Standard Chartered Bank PLC	Standard Chartered Bank Jakarta Branch Standard Chartered Bank (Singapore) Limited Standard Chartered Bank (Hong Kong) Limited

Table D-1. Organizations aggregated across branches and subsidiaries

BNP Paribas S.A.	Bank BNP Paribas Indonesia BNP Paribas Fortis S.A./N.V.
PT Bank Mandiri (Persero) Tbk	Bank Mandiri Bank Mandiri Tbk PT Bank Mandiri (Persero) Tbk Singapore Branch PT Bank Mandiri (Persero) Tbk Hong Kong Branch
CTBC Bank	PT CTBC Bank Indonesia
Citibank N.A.	Citibank International PLC Citigroup Global Markets, Inc. Citigroup
Indonesia Eximbank	PT Indonesia Eximbank
Australia and New Zealand Banking Group (ANZ)	ANZ Bank
United Overseas Bank Limited (UOB)	United Overseas Bank Indonesia (UOB Indonesia) United Overseas Bank of Singapore

Entity type	Primary financier	Co-financier	Implementer	Direct recipient	Indirect recipient	Total
Education	0	0	1	12	0	13
Government agency	17	2	37	17	1	74
Intergovernmental organization	0	2	9	5	0	16
Joint venture/special purpose vehicle	2	0	20	44	1	67
Miscellaneous agency type	1	1	13	6	0	21
NGO/CSO/found ation	0	0	4	3	0	7
Private sector	3	131	48	61	2	245
State-owned bank	0	48	3	7	0	58
State-owned commercial bank	15	17	0	1	0	33
State-owned company	17	5	78	45	1	146
State-owned fund	1	0	0	0	0	1
State-owned policy bank	2	2	0	0	0	4
Total	58	208	213	201	5	685

Table D-2. Organization classification, all roles in Indonesia, 2000-2023

Notes: Some entities play more than one role across PRC-financed projects, hence why the number of entities in each role adds up to more than the total entities overall. Sources: Global Chinese Development Finance Dataset, Version 3.0 for 2000-2021 (Custer et al., 2023; Dreher et al., 2022). Supplemented by limited desk research and media article review by the research team to identify additional projects and details for 2023.

Appendix E. Supplemental tables and figures for Chapter 4

Model selection and specification

We ran a whole battery of regression models to more thoroughly analyze the outcomes of interest. Our analysis draws on a range of surveys and objective measures, including public approval of China's leadership, as well as economic, environmental, and social/governance indicators in Indonesia. Below, we outline the general modeling approach used throughout this study.

Our unit of analysis is the province-year for all models except one, which is estimated at the national level.² When the outcome variable is binary, we use either linear probability models (LPM) or logistic regressions, depending on which specification yields a lower AIC or BIC. These information criteria penalize overly complex models while rewarding better fit, allowing us to select the specification that best balances accuracy and parsimony. This helps ensure we are using the most appropriate model for the data at hand. For outcome variables that are continuous, we use OLS regression, and for those that are ordered categories, we use ordered logistic regression.

We use year- and province-fixed effects to control for time-invariant characteristics within years and provinces. Robust standard errors are clustered by province to account for correlated errors within each panel unit, which complements the fixed-effects approach. This method is supported by econometricians like Angrist and Pischke (2009) and by simulation studies from Cameron and Miller (2015), which recommend at least 30–50 clusters for reliable inference. Our models vary in data availability but always include at least 30 provinces, which falls within this recommended range. Clustered standard errors also yield lower AIC and BIC scores than models using simple robust errors that do not account for province-level clustering, due to better fit under within-province error correlation. For public opinion data, we control for individual characteristics including age, gender, urban-rural residence, employment status, education level, and household income. To account for differences among provinces, we rely on province-fixed effects to absorb unobserved heterogeneity at the subnational level. Future work with more targeted hypotheses may wish to collect richer covariates to account for province-specific characteristics in greater detail. Finally, we apply the natural logarithm to the following economic variables due to extreme right-skewness in their distributions: China's DF (amount and projects), Chinese FDI (amount and projects), household income (individual level),

² The Asian Barometer Survey does not consistently track respondents' subnational location across all waves. Therefore, these models are run at the national level

and OECD DAC Aid. This transformation reduces the influence of outliers, improves linearity, and helps satisfy the normality and homoscedasticity assumptions of linear regression models.

Due to variation in data availability, the number of observations, provinces included, and years covered differ across models. Sample sizes are reduced when applying lag specifications, particularly at three- and five-year intervals. While only the five-year lag results are reported in the manuscript, we include all lag lengths in the supplementary tables below. Each table also reports the number of observations, provinces, and years for each model, along with a column listing the initials of any missing provinces. In footnote 115, we estimate average marginal effects using the margins command in Stata to quantify the change in predicted probability of government approval associated with a one-unit increase in the log-transformed lagged FDI project count. The marginal effect is based on a logistic regression model with robust standard errors and reflects the average partial effect across all observations.

One challenge in modeling Indonesia's provinces is that the number of provinces has increased over time, with new provinces created by splitting off from existing ones. While datasets generally reflect the correct administrative units for a given year, internal dynamics in provinces can shift once a new province is carved out. We take province names at face value and include them in the panel from the year they appear, recognizing that the characteristics of the parent province may change after a split. Because the data are structured around contemporaneous administrative boundaries, there is little scope for fully correcting for these changes. Future work may wish to examine the implications of these boundary changes more systematically.

Finally, we note that fDi Markets provides subnational information for 10 "super regions": Aceh, Bali, Bengkulu, Java, Kalimantan, Maluku, New Guinea, Nusa Tenggara, Riau Kepulauan, Sulawesi, and Sumatra. We therefore associate each region's FDI amount and project count based on the "super region" to which a province belongs. For example, fDi Markets data for the "super region" Java are assigned to the provinces of Banten, Central Java, East Java, Jakarta Special Capital Region, Special Region of Yogyakarta, and West Java. This approach offers a more granular analysis than simply assigning non–non-province-specific data at the national level.

The regression results below report the direction and statistical significance of the coefficient for each variable of interest, along with key model characteristics (number of observations, provinces, and years included). Presenting even streamlined results from 252 models would make this document overly cumbersome. Readers interested in the full output are encouraged to email Jonathan A. Solis (jasolis@aiddata.wm.edu).

Summary tables and expanded results

	Table E-1. Su	ummary o	f data	used in	statistical	analysis
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Description (short)	Description (long)	Source	Coverage	Range
Democratic Institutions Capacity Index	Democratic Institutions Capacity Index by Province (combined)	BPS	2009-2020	52.61-89.21
Democracy Index	Indonesia Democracy Index by Province (combined) ³	BPS	2021-2023	62.93-85.62
Gross Regional Domestic Product	Gross Regional Domestic Product (Billion Rupiahs, 2010 prices)	BPS	2010-2023	13172.5-2050 465.97
Gross Regional Domestic Product p/c	Per Capita Gross Regional Domestic Product by Province (Thousand Rupiahs, 2010 prices)	BPS	2010-2023	9094.7-19213 3.32
Health insurance, PBI	Percentage of Population with Health Insurance - BPJS Kesehatan (PBI)	BPS	2017-2021	14.76-83.4
% Poor Population	Percentage of Poor Population (P0) by Province	BPS	2012-2024	3.42-31.53
Unemployment Rate by Province (Percent)	Unemployment Rate	BPS	2000-2024	0.88-17.32
Human Development Index	Subnational Human Development Index (SHDI) is a translation of the UNDP's official HDI (hdr.undp.org) to the subnational level. The SHDI is an average of the subnational values of three dimensions: education, health and standard of living.	Global Development Lab (GDL)	2000-2022	0.501-0.773
Subnational corruption	The Subnational Corruption Database (SCD) provides the levels of total (Subnational Corruption Index; SCI), grand, and petty corruption for 1,473 subnational regions within 178 countries. Grand perceptions and petty experiences are predominantly at the household level, sourced from 13 different organizations using 807 different surveys, in total. The data are available from 1995-2022. The SCI is available in two forms. The Baseline SCI only offers information in the years in which household	Global Development Lab (GDL)	2000-2022	52.5-70.7

³ Following Lubis et al. (2024), we combine these two indices, which, while estimated using different methods, yield scores on a common scale. Although this approach is not without limitations, it offers a practical solution. We encourage future research to assess the validity and implications of this strategy.

	surveys are available for a particular subnational area. These baseline data are most appropriate for (academic) research. The Comprehensive SCI uses methods of estimation, interpolation and extrapolation to arrive at a full series for each area. These comprehensive data are most appropriate for descriptive purposes or within-year comparisons.			
Normalized Difference Vegetation Index (NDVI)	Yearly Normalized Difference Vegetation Index - NDVI (LTDR v5 - AVHRR). Measures vegetation greenness and density, yearly mean	NASA LAADS DAAC/ GeoQuery	2000-2020	2097.7728861 3-7473.24590 006
Carbon Dioxide	OCO-2 (v11.1r) - CO2 Concentration (yearly). The average concentration of carbon dioxide in a column of dry air extending from Earth's surface to the top of the atmosphere. The raster used is the result of aggregating one year of data to a 10km grid and then using a linear interpolation to fill gaps. The underlying data were produced by NASA's OCO-2 project, and obtained from the OCO-2 data archive maintained at the NASA Goddard Earth Science Data and Information Services Center.	NASA/ GeoQuery	2015-2023	398.4335281- 419.8642609
China's FDI Amount	Foreign Direct Investment amounts from China to Indonesia	fDi Markets	2010-2024	19300000-111 11500043.153 8 (millions)
China's FDI Projects	Foreign Direct Investment projects from China to Indonesia	fDi Markets	2010-2024	2-23
Air Quality	Respondent reports Dissatisfaction with air quality, DKs and Refused coded as NAs	Gallup World Poll	2006-2024	8.16-23.89
Approval of China's Leadership	Derived from WP156 'Do you approve or disapprove of the job performance of the leadership of China?' Binary indicator of approval. Coded 1 if the response was "Approve"; 0 if the response was "Disapprove" or "Don't know." "Refused" responses are coded as missing (NA).	Gallup World Poll	2006-2024	17.86-52.02

Corruption Index (GWP)	The Corruption Index measures perceptions in a community about the level of corruption in both business and government. Higher scores indicate that a greater share of respondents perceive corruption as widespread. The index is based on two survey items: "Is corruption widespread within businesses located in (country), or not?" (WP145) and "Is corruption widespread throughout the government in (country), or not?" (WP146). At the individual level, responses indicating that corruption is widespread are coded as 1; all other responses—including "Don't know" and "Refused"—are coded as 0. If a respondent has no valid answer for one of the items, that item is excluded from their index score; if both are missing, no score is calculated. The individual index score is the mean of the valid items multiplied by 100. The country-level index is the weighted average of all individual scores for respondents with valid data on both items, using Gallup's country weights.	Gallup World Poll	2006-2024	78.52-90.53
Approval of Own Gov't Leadership	Derived from WP150 'Do you approve or disapprove of the job performance of the leadership of this country?' Binary indicator of approval. Coded 1 if the response was "Approve"; 0 if the response was "Disapprove" or "Don't know." "Refused" responses are coded as missing (NA).	Gallup World Poll	2007-2024	45.24-88.76
Water Quality	Respondent reports Dissatisfaction with water quality, DKs and Refused coded as NAs	Gallup World Poll	2006-2024	10.05-41.91
Food and Shelter Index	The Food and Shelter Index measures individuals' ability to afford basic necessities, with lower scores reflecting greater reported hardship.	Gallup World Poll	2006-2024	0-100
Local Economic Confidence Index	Measures individuals' perceptions of their local economy by assessing both current economic conditions and expectations about whether those conditions are improving or worsening. Higher scores indicate greater confidence.	Gallup World Poll	2006-2024	-100-100
Job Climate Index	Measures public attitudes toward a community's ability to provide economic opportunity, capturing both perceptions of overall economic improvement and local job availability.	Gallup World Poll	2006-2024	0-100
Civic Engagement	Assesses respondents' inclination to volunteer	Gallup World	2006-2024	0-100

Index	their time and assistance to others. It is designed to measure a respondent's commitment to the community where he or she lives.	Poll		
Youth Development Index	Measures a community's focus on the welfare of its children. This index includes general measures of development of youth and respect for youth, along with satisfaction with the educational system.	Gallup World Poll	2006-2024	0-100
ls Indonesia a Democracy?	Asks if Indonesia respondents think their country is a democracy. We recode perceptions of regime type into a binary indicator. Respondents who described their country as a "full democracy" or "a democracy with minor problems" are coded as democratic (1), while those indicating "a democracy with major problems" or "not a democracy" are coded as non-democratic (0); all other responses are excluded from analysis.	Asian Barometer	2011, 2016, 2019, 2021	0-1
China's Development Finance Amount	China's Development Finance amount is 2022 USD to Indonesia using AidData's GCFD 3.0 plus preliminary data for the years 2022 and 2023	AidData	2000-2023	0-7.04 Billions (USD 2024)
China's Development Finance Projects	China's Development Finance projects to Indonesia using AidData's GCFD 3.0 plus preliminary data for the years 2022 and 2023	AidData	2000-2023	0-44

Input	Lag	China Approval Coefficient	Obs.	Years	Panel Units	Own Government Approval Coefficient	Obs.	Years	Panel Units
DF Amount	1 yr	(+)	16,181	2009-2023	34	(+)	17,168	2009-2023	34
DF Amount	3 yrs	(-)	16,181	2009-2023	34	(-)	17,168	2009-2023	34
DF Amount	5 yrs	(-)	16,181	2009-2023	34	(+)	17,168	2009-2023	34
DF Projects	1 yr	(+)	16,181	2009-2023	34	(-)	17,168	2009-2023	34
DF Projects	3 yrs	(-)	16,181	2009-2023	34	(-)	17,168	2009-2023	34
DF Projects	5 yrs	(-)	16,181	2009-2023	34	(-)	17,168	2009-2023	34
FDI Amount	1 yr	(+)	14,028	2011-2023	34	(+)	15,017	2011-2023	34
FDI Amount	3 yrs	(-)	12,052	2013-2023	34	(-)	12,050	2013-2023	34
FDI Amount	5 yrs	(+)	10,055	2015-2023	34	(-)	10,059	2015-2023	34
FDI Projects	1 yr	(+)	14,028	2011-2023	34	(-)	15,017	2011-2023	34
FDI Projects	3 yrs	(-)	12,052	2013-2023	34	(-)	12,050	2013-2023	34
FDI Projects	5 yrs	(+)	10,055	2015-2023	34	(-)	10,059	2015-2023	34

Table E-2. Impact of Chinese development finance and foreign direct investment on public approval of China and the Indonesian government, 2009-2023

Notes: Results are based on annual data for each province, allowing us to examine how outcomes change over time and across different regions. All models logistic regression and include four types of Chinese financing as inputs (independent variables), along with demographic control variables and fixed effects for both year and province. The +/- signs indicate the direction of the coefficient's relationship. No result yielded statistical significance at conventional levels (p < 0.001, p < 0.01, or p < 0.05). There is variability in the years of coverage for individual indicators due to data availability. See model details under each coefficient cell for further details on each model. Each column header indicates which statistical model is used (OLS or LPM). Sources: Approval of China's leadership and approval of Indonesian leadership from Gallup World Poll data; 'Refused to answer' responses were excluded from analysis.

Table E-3. Chinese development finance, Chinese FDI, and economic outcomes in Indonesia, 2000-2023

		Generally obs	erved economi	c aggregates		Perceived economic experiences of Indonesians			
Input	Lag	GRDP [Fixed Effects, Ordinary Least Squares] (β)	GRDP per capita [<i>Fixed</i> <i>Effects,</i> <i>Ordinary</i> <i>Least</i> <i>Squares</i>]	Unemployment Rate [<i>Fixed Effects,</i> <i>Ordinary Least</i> <i>Squares</i>] (β)	Poverty Rate [<i>Fixed</i> <i>Effects,</i> <i>Ordinary</i> <i>Least</i> <i>Squares</i>] (β)	Food Security Coefficient [<i>Ordered</i> <i>Logistic</i> <i>Regression</i>] (β)	Local Economic Conditions [<i>Ordered</i> <i>Logistic</i> <i>Regression</i>]	Local Job Climate [<i>Ordered</i> <i>Logistic</i> <i>Regression</i>]	
DF Amount	1 yr	(-)	(+)	(-)	(+)	(+)	(-)	(+)	
Model Details		Obs: 473	Obs: 473	Obs: 753	Obs: 405	Obs: 17,215	Obs: 8,076	Obs: 18,215	
		Years: 2010-23	Years: 2010-23	Years: 2001-23	Years: 2012-23	Years: 2009-23	Years: 2017-23	Years: 2009-23	
		Panel Units: 34	Panel Units: 34	Panel Units: 34	Panel Units: 34	Panel Units: 34	Panel Units: 34	Panel Units: 34	
DF Amount	3 yrs	(+)	(+)	(-)	(+)	(-) (-)		(+)	
Model Details		Obs: 473	Obs: 473	Obs: 693	Obs: 405	Obs: 17,215	Obs: 8,076	Obs: 18,215	
		Years: 2010-23	Years: 2010-23	Years: 2003-23	Years: 2012-23	Years: 2009-23	Years: 2017-23	Years: 2009-23	
		Panel Units: 34	Panel Units: 34	Panel Units: 34	Panel Units: 34	Panel Units: 34	Panel Units: 34	Panel Units: 34	
DF Amount	5 yrs	(+)	(+)	(-)	(+)	(+)	(+)	(+)	
Model Details	1	Obs: 473	Obs: 473	Obs: 633	Obs: 405	Obs: 17,215	Obs: 8,076	Obs: 18,215	
		Years: 2010-23	Years: 2010-23	Years: 2005-23	Years: 2012-23	Years: 2009-23	Years: 2017-23	Years: 2009-23	
		Panel Units: 34	Panel Units: 34	Panel Units: 34	Panel Units: 34	Panel Units: 34	Panel Units: 34	Panel Units: 34	
DF Projects	1 yr	(+)	(+)	(-)	(-)	(+)	(+)	(+)	

Model Details		Obs: 473	Obs: 473	Obs: 753	Obs: 405	Obs: 17,215	Obs: 8,076	Obs: 18,215
		Years: 2010-23	Years: 2010-23	Years: 2001-23	Years: 2012-23	Years: 2009-23	Years: 2017-23	Years: 2009-23
		Panel Units: 34	Panel Units: 34	Panel Units: 34	Panel Units: 34	Panel Units: 34	Panel Units: 34	Panel Units: 34
DF Projects	3 yrs	(+)	(+)	(-)	(+)	(-)	(+)	(+)
Model Details		Obs: 473	Obs: 473	Obs: 693	Obs: 405	Obs: 17,215	Obs: 8,076	Obs: 18,215
		Years: 2010-23	Years: 2010-23	Years: 2003-23	Years: 2012-23	Years: 2009-23	Years: 2017-23	Years: 2009-23
		Panel Units: 34	Panel Units: 34	Panel Units: 34 Panel Units: 34 Panel Units: 34		Panel Units: 34	Panel Units: 34	
DF Projects	5 yrs	(+)	(+)	(-)	(-) (+)		(+)	(+)
Model Details		Obs: 473	Obs: 473	Obs: 633	Obs: 405	Obs: 17,215	Obs: 8,076	Obs: 18,215
		Years: 2010-23	Years: 2010-23	Years: 2005-23	Years: 2012-23	Years: 2009-23	Years: 2017-23	Years: 2009-23
		Panel Units: 34	Panel Units: 34	Panel Units: 34	Panel Units: 34	Panel Units: 34	Panel Units: 34	Panel Units: 34
FDI Amount	1 yr	(+)	(+)	(-)	(-)	(+)	(+)	(+)
Model Details		Obs: 388	Obs: 388	Obs: 386	Obs: 357	Obs: 15,059	Obs: 8,079	Obs: 16,059
		Years: 2011-23	Years: 2011-23	Years: 2011-23	Years: 2012-23	Years: 2011-23	Years: 2017-23	Years: 2011-23
		Panel Units: 30	Panel Units: 30	Panel Units: 30	Panel Units: 30	Panel Units: 34	Panel Units: 34	Panel Units: 34
FDI Amount	3 yrs	(+)	(+)	(+)	(+)	(+)	(+)	(+)
Model Details		Obs: 330	Obs: 330	Obs: 326	Obs: 328	Obs: 11,075	Obs: 8,079	Obs: 12,075
		Years: 2013-23	Years: 2013-23	Years: 2013-23	Years: 2013-23	Years: 2014-23	Years: 2017-23	Years: 2013-23
		Panel Units: 30	Panel Units: 30	Panel Units: 30	Panel Units: 30	Panel Units: 34	Panel Units: 34	Panel Units: 34
FDI Amount	5 yrs	(+)	(+)	(+)	(+)	(+)	(-)	(-)
Model Details		Obs: 270	Obs: 270	Obs: 270	Obs: 270	Obs: 10,077	Obs: 8,079	Obs: 10,077
		Years: 2015-23	Years: 2015-23	Years: 2015-23	Years: 2015-23	Years: 2015-23	Years: 2017-23	Years: 2015-23
		Panel Units: 30	Panel Units: 30	Panel Units: 30	Panel Units: 30	Panel Units: 34	Panel Units: 34	Panel Units: 34

FDI Projects	1 yr	(+)	(+)	(-)	(-)	(+)	(+)	(+)
Model Details		Obs: 388	Obs: 388	Obs: 386	Obs: 357	Obs: 15,059	Obs: 8,079	Obs: 16,059
		Years: 2011-23	Years: 2011-23	Years: 2011-23	Years: 2012-23	Years: 2011-23	Years: 2017-23	Years: 2011-23
		Panel Units: 30	Panel Units: 30	Panel Units: 30	Panel Units: 30	Panel Units: 34	Panel Units: 34	Panel Units: 34
FDI Projects	3 yrs	(+)	(+)	(+)	(+)	(+)	(-)	(-)
Model Details		Obs: 330	Obs: 330	Obs: 326	Obs: 328	Obs: 11,075	Obs: 8,079	Obs: 12,075
		Years: 2013-23	Years: 2013-23	Years: 2013-23	Years: 2013-23	Years: 2014-23	Years: 2017-23	Years: 2013-23
		Panel Units: 30	Panel Units: 30	Panel Units: 30	Panel Units: 30	Panel Units: 34	Panel Units: 34	Panel Units: 34
	-							
FDI Projects	5 yrs	(+)	(+)	(+)	(+)	(+)	(-)	(-)
Model Details		Obs: 270	Obs: 270	Obs: 270	Obs: 270	Obs: 10,077	Obs: 8,079	Obs: 10,077
		Years: 2015-23	Years: 2017-23	Years: 2015-23				
		D 111 1 20			D 111 12 00		D 111 1 24	
		Panel Units: 30	Panel Units: 30	Panel Units: 30	Panel Units: 30	Panel Units: 34	Panel Units: 34	Panel Units: 34

Notes: Results are based on annual data for each province to examine how outcomes change over time and across different regions. The models include four types of Chinese financing as inputs (independent variables), demographic control variables, and fixed effects for both year and province. The +/- signs indicate the direction of the coefficient's relationship. Cells in green indicate that the association between the type of PRC financing and the economic indicator of interest is significant at conventional levels (p < 0.001, p < 0.01, or p < 0.05). In contrast, blue cells indicate a weaker association (p < 0.1). There is variability in the years of coverage for individual indicators due to data availability. See model details under each coefficient cell for further details on each model. Each column header indicates which statistical model is used (OLS or LPM). Food security data missing for 2013, FDI Amount and Projects models. Sources: BPS (2025); Gallup World Poll.

Table E-4. Chinese development finance, Chinese FDI, and environmental outcomes in Indonesia, 2006-2023

		NDVI			
		[Fixed Effects, Ordinary Least Squares]	Carbon Dioxide [<i>Fixed Effects,</i> <i>Ordinary Least Squares</i>]	Water Dissatisfaction [Linear Probability model]	Air Dissatisfaction [Linear Probability model]
Input	Lag	(β)	(β)	(β)	(β)
DF Amount	1 yr	(+)	(-)	(-)	(-)
Model Details		Obs: 655	Obs: 306	Obs: 17,163	Obs: 17,073
		Years: 2001-20	Years: 2015-23	Years: 2009-23	Years: 2009-23
		Panel Units: 34	Panel Units: 34	Panel Units: 34	Panel Units: 34
DF Amount	3 yrs	(+)	(-)	(-)	(-)
Model Details		Obs: 595	Obs: 306	Obs: 17,163	Obs: 17,073
		Years: 2003-20	Years: 2015-23	Years: 2009-23	Years: 2009-23
		Panel Units: 34	Panel Units: 34	Panel Units: 34	Panel Units: 34
DF Amount	5 yrs	(+)	(-)	(-)	(+)
Model Details		Obs: 535	Obs: 306	Obs: 17,163	Obs: 17,073
		Years: 2005-20	Years: 2015-23	Years: 2009-23	Years: 2009-23
		Panel Units: 34	Panel Units: 34	Panel Units: 34	Panel Units: 34
DF Projects	1 yr	(+)	(+)	(-)	(-)
Model Details		Obs: 655	Obs: 306	Obs: 17,163	Obs: 17,073
		Years: 2001-20	Years: 2015-23	Years: 2009-23	Years: 2009-23
		Panel Units: 34	Panel Units: 34	Panel Units: 34	Panel Units: 34

DF Projects	3 yrs	(-)	(-)	(+)	(-)
Model Details		Obs: 595	Obs: 306	Obs: 17,163	Obs: 17,073
		Years: 2003-20	Years: 2015-23	Years: 2009-23	Years: 2009-23
		Panel Units: 34	Panel Units: 34	Panel Units: 34	Panel Units: 34
DF Projects	5 yrs	(+)	(+)	(-)	(-)
Model Details		Obs: 535	Obs: 306	Obs: 17,163	Obs: 17,073
		Years: 2005-20	Years: 2015-23	Years: 2009-23	Years: 2009-23
		Panel Units: 34	Panel Units: 34	Panel Units: 34	Panel Units: 34
FDI Amount	1 yr	(-)	(-)	(-)	(-)
Model Details		Obs: 298	Obs: 270	Obs: 15,020	Obs: 14,945
		Years: 2011-20	Years: 2015-23	Years: 2011-23	Years: 2011-23
		Panel Units: 30	Panel Units: 30	Panel Units: 34	Panel Units: 34
FDI Amount	3 yrs	(-)	(+)	(-)	(-)
Model Details		Obs: 240	Obs: 270	Obs: 12,045	Obs: 11,989
		Years: 2013-20	Years: 2015-23	Years: 2013-23	Years: 2013-23
		Panel Units: 30	Panel Units: 30	Panel Units: 34	Panel Units: 34
FDI Amount	5 yrs	(+)	(+)	(+)	(+)
Model Details		Obs: 180	Obs: 270	Obs: 10,056	Obs: 10,000
		Years: 2015-20	Years: 2015-23	Years: 2015-23	Years: 2015-23
		Panel Units: 30	Panel Units: 30	Panel Units: 34	Panel Units: 34
FDI Projects	1 yr	(-)	(-)	(+)	(-)
Model Details		Obs: 298	Obs: 270	Obs: 15,020	Obs: 14,945
		Years: 2011-20	Years: 2015-23	Years: 2011-23	Years: 2011-23

		Panel Units: 30	Panel Units: 30	Panel Units: 34	Panel Units: 34
FDI Projects	3 yrs	(-)	(+)	(-)	(-)
Model Details		Obs: 240	Obs: 270	Obs: 12,045	Obs: 11,989
		Years: 2013-20	Years: 2015-23	Years: 2013-23	Years: 2013-23
		Panel Units: 30	Panel Units: 30	Panel Units: 34	Panel Units: 34
FDI Projects	5 yrs	(-)	(+)	(+)	(+)
Model Details		Obs: 180	Obs: 270	Obs: 10,056	Obs: 10,000
		Years: 2015-20	Years: 2015-23	Years: 2015-23	Years: 2015-23
		Panel Units: 30	Panel Units: 30	Panel Units: 34	Panel Units: 34

Notes: The models use province-year data. In addition to the four types of Chinese financing as inputs (independent variables), they include demographic control variables and fixed effects for both year and province. The +/- signs indicate the direction of the coefficient's relationship. Green cells indicate that the association between the type of PRC financing and the outcome indicator of interest is significant at conventional levels (p < 0.001, < 0.01, or < 0.05). The blue cell indicates a weak but statistically significant association between the type of PRC financing and the years of coverage for individual indicators due to data availability. See model details under each coefficient cell for further details on each model. Each column header indicates which statistical model is used (OLS or LPM). Sources: NASA for Normalized Difference Vegetation Index (NDVI); Gallup World Poll.

Table E-5. Chinese development finance, Chinese FDI, and social and governance outcomes in Indonesia, 2000-2023

		Ind. Demo. Index	SHDI	Corpt	Healthcare Access				
IV Туре	Lag	[Fixed Effects, Ordinary Least Squares] (ß)	[Fixed Effects, Ordinary Least Squares] (β)	[Fixed Effects, Ordinary Least Squares] (β)	[Fixed Effects, Ordinary Least Squares] (β)	Demo AB [Logistic Regression] (β)	Civic Engag. [Ordered Logistic Regression] (ß)	Youth Dev. [Ordered Logistic Regression] (ß)	Percept. Corruption [Ordered Logistic Regression] (B)
DF Amount	1yr	(-)	(+)	(+)	(+)	(+)	(-)	(+)	(+)
Model Details		Obs: 504	Obs: 691	Obs: 691	Obs: 170	Obs: 7,117	Obs: 16,216	Obs: 16,216	Obs: 18,215
		Years: 2009-23	Years: 2001-22	Years: 2001-22	Years: 2017-21	Years: 4 waves	Years: 2009-23	Years: 2009-23	Years: 2009-23
		Panel Units: 34	Panel Units: 32	Panel Units: 32	Panel Units: 34	Panel Units: n/a	Panel Units: 34	Panel Units: 34	Panel Units: 34
DF Amount	3yrs	(-)	(+)	(-)	(-)	(+)	(-)	(+)	(+)
Model Details		Obs: 504	Obs: 633	Obs: 633	Obs: 170	Obs: 7,117	Obs: 16,216	Obs: 16,216	Obs: 18,215
		Years: 2009-23	Years: 2003-22	Years: 2003-22	Years: 2017-21	Years: 4 waves	Years: 2009-23	Years: 2009-23	Years: 2009-23
		Panel Units: 34	Panel Units: 32	Panel Units: 32	Panel Units: 34	Panel Units: n/a	Panel Units: 34	Panel Units: 34	Panel Units: 34
DF Amount	5yrs	(-)	(-)	(-)	(-)	(+)	(+)	(-)	(+)
Model Details		Obs: 504	Obs: 575	Obs: 575	Obs: 170	Obs: 7,117	Obs: 16,216	Obs: 16,216	Obs: 18,215
		Years: 2009-23	Years: 2005-22	Years: 2005-22	Years: 2017-21	Years: 4 waves	Years: 2009-23	Years: 2009-23	Years: 2009-23
		Panel Units: 34	Panel Units: 32	Panel Units: 32	Panel Units: 34	Panel Units: n/a	Panel Units: 34	Panel Units: 34	Panel Units: 34
DF Projects	1yr	(-)	(-)	(+)	(+)	(-)	(+)	(+)	(+)
Model Details		Obs: 504	Obs: 691	Obs: 691	Obs: 170	Obs: 7,117	Obs: 16,216	Obs: 16,216	Obs: 18,215

		Years: 2009-23	Years: 2001-22	Years: 2001-22	Years: 2017-21	Years: 4 waves	Years: 2009-23	Years: 2009-23	Years: 2009-23
		Panel Units: 34	Panel Units: 32	Panel Units: 32	Panel Units: 34	Panel Units: n/a	Panel Units: 34	Panel Units: 34	Panel Units: 34
DF Projects	3yrs	(-)	(+)	(+)	(-)	(+)	(-)	(-)	(+)
Model Details		Obs: 504	Obs: 633	Obs: 633	Obs: 170	Obs: 7,117	Obs: 16,216	Obs: 16,216	Obs: 18,215
		Years: 2009-23	Years: 2003-22	Years: 2003-22	Years: 2017-21	Years: 4 waves	Years: 2009-23	Years: 2009-23	Years: 2009-23
		Panel Units: 34	Panel Units: 32	Panel Units: 32	Panel Units: 34	Panel Units: n/a	Panel Units: 34	Panel Units: 34	Panel Units: 34
DF Projects	5yrs	(-)	(-)	(-)	(-)	(+)	(+)	(-)	(-)
Model Details		Obs: 504	Obs: 575	Obs: 575	Obs: 170	Obs: 7,117	Obs: 16,216	Obs: 16,216	Obs: 18,215
		Years: 2009-23	Years: 2005-22	Years: 2005-22	Years: 2017-21	Years: 4 waves	Years: 2009-23	Years: 2009-23	Years: 2009-23
		Panel Units: 34	Panel Units: 32	Panel Units: 32	Panel Units: 34	Panel Units: n/a	Panel Units: 34	Panel Units: 34	Panel Units: 34
FDI Amount	1yr	(-)	(-)	(+)	(-)	(+)	(-)	(-)	(-)
Model Details		Obs: 386	Obs: 336	Obs: 336	Obs: 150	Obs: 5,663	Obs: 14,060	Obs: 14,060	Obs: 16,059
		Years: 2011-23	Years: 2011-22	Years: 2011-22	Years: 2017-21	Years: 4 waves	Years: 2011-23	Years: 2011-23	Years: 2011-23
		Panel Units: 30	Panel Units: 28	Panel Units: 28	Panel Units: 30	Panel Units: n/a	Panel Units: 34	Panel Units: 34	Panel Units: 34
FDI Amount	3yrs	(+)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
Model Details		Obs: 328	Obs: 280	Obs: 280	Obs: 150	Obs: 4,278	Obs: 12,075	Obs: 12,075	Obs: 12,075
		Years: 2013-23	Years: 2013-22	Years: 2013-22	Years: 2017-21	Years: 3 waves	Years: 2013-23	Years: 2013-23	Years: 2013-23
		Panel Units: 30	Panel Units: 28	Panel Units: 28	Panel Units: 30	Panel Units: n/a	Panel Units: 34	Panel Units: 34	Panel Units: 34
FDI Amount	5yrs	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(+)
Model Details		Obs: 270	Obs: 224	Obs: 224	Obs: 150	Obs: 4,278	Obs: 10,077	Obs: 10,077	Obs: 10,077
		Years: 2015-23	Years: 2015-22	Years: 2015-22	Years: 2017-21	Years: 3 waves	Years: 2015-23	Years: 2015-23	Years: 2015-23

		Panel Units: 30	Panel Units: 28	Panel Units: 28	Panel Units: 30	Panel Units: n/a	Panel Units: 34	Panel Units: 34	Panel Units: 34
FDI Projects	1yr	(-)	(-)	(+)	(+)	(+)	(-)	(+)	(-)
Model Details		Obs: 386	Obs: 336	Obs: 336	Obs: 150	Obs: 5,663	Obs: 14,060	Obs: 14,060	Obs: 16,059
		Years: 2011-23	Years: 2011-22	Years: 2011-22	Years: 2017-21	Years: 4 waves	Years: 2011-23	Years: 2011-23	Years: 2011-23
		Panel Units: 30	Panel Units: 28	Panel Units: 28	Panel Units: 30	Panel Units: n/a	Panel Units: 34	Panel Units: 34	Panel Units: 34
FDI Projects	3yrs	(+)	(-)	(-)	(-)	(+)	(-)	(-)	(-)
Model Details		Obs: 328	Obs: 280	Obs: 280	Obs: 150	Obs: 4,278	Obs: 12,075	Obs: 12,075	Obs: 12,075
		Years: 2013-23	Years: 2013-22	Years: 2013-22	Years: 2017-21	Years: 3 waves	Years: 2013-23	Years: 2013-23	Years: 2013-23
		Panel Units: 30	Panel Units: 28	Panel Units: 28	Panel Units: 30	Panel Units: n/a	Panel Units: 34	Panel Units: 34	Panel Units: 34
FDI Projects	5yrs	(-)	(-)	(+)	(+)	(-)	(-)	(+)	(+)
Model Details		Obs: 270	Obs: 336	Obs: 336	Obs: 150	Obs: 4,278	Obs: 10,077	Obs: 10,077	Obs: 10,077
		Years: 2015-23	Years: 2011-22	Years: 2011-22	Years: 2017-21	Years: 3 waves	Years: 2015-23	Years: 2015-23	Years: 2015-23
		Panel Units: 30	Panel Units: 28	Panel Units: 28	Panel Units: 30	Panel Units: n/a	Panel Units: 34	Panel Units: 34	Panel Units: 34

Notes: The models use province-year data. In addition to the four types of Chinese financing as inputs (independent variables), they include demographic control variables and fixed effects for both year and province. Survey data on if Indonesia is a democracy (Demo AB) is at the national level due to data quality. The +/- signs indicate the direction of the coefficient's relationship. Green cells indicate that the association between the type of PRC financing and the outcome indicator of interest is significant at conventional levels (p < 0.001, < 0.01, or < 0.05). Blue cells indicate a weaker association (p < 0.1). There is variability in the years of coverage for individual indicators due to data availability. See model details under each coefficient cell for further details on each model. Each column header indicates which statistical model is used (OLS or Ordered Logit). Sources: BPS; Global Data Lab; Gallup World Poll.

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