Institute for Economic and Social Research
Faculty of Economics and Business Universitas Indonesia

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Executive Summary of Interim Report

Estimating the Demand for Social Infrastructure Investment in Indonesia[1]

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Investments on transport, power, telecommunication, and water infrastructure remains crucial for a national development; however, these infrastructures are necessary condition but not sufficient to promote a future inclusive growth. Social infrastructure as sufficient condition will improve the quality of nation's human resource in form of quality level of education, health, and housing. Complementing a study of ADB (2017), this study aims at estimating the demand of social infrastructures (education, health and housing) in Indonesia up to 2030 and providing insightful policy recommendations to filling the gap. This study utilizes two approaches: 1) macro econometric approaches using both panel data of Asian countries and panel data of provincial level in Indonesia to estimate the demand of new infrastructure; 2) micro approach estimating a minimum standard of service that calculates the number of population and the unit cost. The new infrastructure investment demand is calculated by multiplying the estimated infrastructure stock by the standard unit price, while the maintenance cost is assumed based on the previous experience.

Following the framework of Fay and Yepes in 2003 and Ruiz-Nunez and Wei (2015) and using dynamic panel data of provincial level, this study found that over 15 years, Indonesia needs $2.6 billion annually or 0.29% of GDP for expanding of health infrastructure. Hospital requires most of this number, $34.5 billion (over 15 years), while health center only requires the other $4.8 billion. On the education sector, the investment reaches $21.9 billion, mostly for elementary school investment, or amounting only 0.16% of GDP. In addition, housing (including both public and private housing) requires $216.4 billion per year, and a total of $3,245.5 billion in 15 years, or 23.86% of projected GDP. Moreover, estimations using panel data of 40 Asian countries shows within 15 years, Indonesia will need $17.4 billion (or $1.2 billion annually). This accounts for 0.13% of projected GDP.

In order to complementing estimations of macro model, this study multiplies the national official minimum standard and the population projection from 2016-2030 to calculate the minimum standard services. Our study estimated that over the 15 years, Indonesia needs a total of $2.58 billion or $0.172 billion a year to fulfil social infrastructure demand. Most of this amount falls in health sector, which requires $0.01 billion per year, and a total of $1.46 billion in 15 years. It happened since Indonesia tries to fulfil the health facilities to support the national health insurance program. Furthermore, Education sector is at the second place and needs $0.074 billion annually. On the education sector, the investment reaches $1.11 billion. The challenges are then how to fulfil this social infrastructure gap in the term of financing and priority. This study will continuously elaborate on estimations as well as discussions with several stakeholders to provide an appropriate policy recommendation.

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[1] Prepared by Teguh Dartanto, M. H. Yudhistira, Chairina Hanum, Andhika Pratama, Edith Z. W. Y., M. Sowwan

Social Infrastructure Demand in Indonesia

The purposes of this research are:
1) to estimate the investment demand of Indonesia's social infrastructure up to 2030,
2) to estimate the investment demand of Indonesia's social infrastructure at regional level,
3) to provide policy recommendations to Indonesia to fill the projected gap of social infrastructure investment.

Social Infrastructure

Education	Primary	Junior Secondary	Senior Secondary
Health	Hospital	Community Health Center	
Housing	House ownership		
Government Building			

Our Approach

Macro Approach
- Province Data
- ASIA Data

Micro Approach
- Population Projection
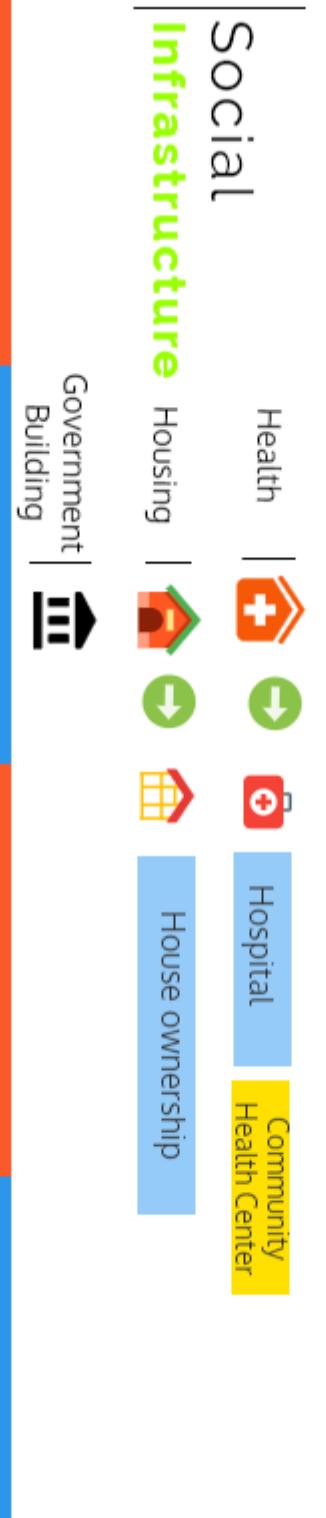
The Unit Costs of Each Social Infrastructure

	in Rp.	in USD
Education	2 billion	0.15 million
Community Health Center	7.5 billion	0.57 million
Public Hospital	35 billion	2.69 million

Projected Infrastructure Needs by Sector using WDI 2016-2030

Sector	Investment needs (USD Billion)	Annual average (USD Billion)	% of projected GDP
Education	17.9	1.2	0.13%
Primary	11.9	0.8	0.09%
Secondary	6.0	0.4	0.04%
Total	17.9	1.2	0.13%

Projected Infrastructure Needs by Sector using Population Projection Data, 2016-2030

Sector	Investment needs (USD Billion)	Annual average (USD Billion)	% of projected GDP
Education	8.53	0.57	0.63%
Health	4.54	0.30	0.33%
Total	13.07	13.07	13.07

Projected Infrastructure Needs by Sector using Provincial Data, 2016-2030

Sector	Investment needs (USD billion)	Annual average (USD billion)	% of projected GDP
Education	22.5	1.5	0.17%
Elementary	14.0	0.9	0.10%
Junior high	7.4	0.5	0.05%
Senior high	1.1	0.1	0.01%
Health	40.5	2.7	0.29%
Hospital	35.6	2.4	0.25%
Health Center	4.9	0.3	0.04%
Housing	3335.6	222.4	24.52%
Government building			
Total	3398.6	226.6	24.98%

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Appendix. Social Infrastructure Demand in Indonesia

Makro-approach

		Year	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Total
Indonesia	Education	New	0.2	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.7	0.7	0.6	0.7	0.7	0.7	0.7	9.0
		Maintenance	0.8	0.8	0.8	0.8	0.8	0.9	0.9	0.9	0.9	0.9	0.9	1.0	1.0	1.0	1.0	13.5
	Health	New	0.6	1.1	1.3	1.5	1.6	1.7	1.8	2.0	2.1	2.3	2.4	2.6	2.7	2.9	3.1	29.8
		Maintenance	0.5	0.5	0.5	0.5	0.6	0.6	0.6	0.7	0.7	0.8	0.8	0.9	0.9	1.0	1.0	10.7
	Housing	New	20.6	18.5	14.8	13.9	13.6	11.9	12.0	12.0	11.9	11.7	8.1	7.9	7.8	7.7	7.6	180.0
		Maintenance	35.8	207.6	210.5	213.0	215.4	217.8	220.0	222.2	224.4	226.6	228.9	230.7	232.4	234.2	236.0	3155.6
	Sub-total	New	21.3	20.1	16.7	16.0	15.8	14.2	14.5	14.6	14.6	14.7	11.2	11.2	11.2	11.3	11.4	218.9
		Maintenance	37.1	208.9	211.8	214.4	216.8	219.3	221.5	223.8	226.1	228.3	230.6	232.5	234.4	236.2	238.1	3179.8

Mikro-approach

		Year	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Total
Indonesia	Education	New	0.14	0.12	0.12	0.12	0.11	0.09	0.07	0.08	0.07	0.07	0.05	0.04	0.03	0.02	-	1.11
		Maintenance	0.48	0.49	0.49	0.49	0.49	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.49	7.42
	Health	New	0.12	0.12	0.11	0.11	0.11	0.11	0.10	0.10	0.10	0.09	0.09	0.09	0.08	0.08	0.08	1.47
		Maintenance	0.19	0.19	0.19	0.20	0.20	0.20	0.20	0.21	0.21	0.21	0.21	0.21	0.21	0.22	0.22	3.07
	Housing	New	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	2.6
		Maintenance	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	10.5