

Impact of Infrastructure Expenditure on Economic Development in East Java

Local Government Spending, Economic Growth, and Poverty Alleviation



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and Poverty Alleviation

SEADI Discussion Paper No. 4

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Executive Summary

Infrastructure plays a key role in economic development, even in developed countries (Assauer 1989 and Munnell 1990), and rates of return on infrastructure investment can be high (Suyono Dikun 2003). To ease burdens on the business sector, the Government of Indonesia has instituted a number of policies. Its first priority is to have local governments provide facilities and services that support businesses. Its second priority is to support development of infrastructure by improving state and regional infrastructure budget allocations.

This study seeks to identify patterns of infrastructure budget allocation, spending, and impact on infrastructure in East Java, one of Indonesia's richest provinces. Sixteen percent of the population dwells there, and 50 percent of them live in urban areas. In 2008 its GDP per capita was Rp 16.7 million (about US\$1,700), and between 2001 and 2009 its rate of economic growth was 5.2 percent, close to the national average. But, in spite of its large population and strong economy, poverty is still high: 16.7 percent of the people in East Java are considered poor as compared to the national average of 14.1 percent. The provincial budget of East Java for 2009-2010 raised total expenditures by 4.3 percent but the allocation for infrastructure declined from 10.7 percent in 2009 to 8.6 percent in 2010.

In this study we analyze the impact of the infrastructure budget on economic growth and unemployment in every district and municipality in East Java, examine factors that influence the effectiveness of budget allocations, and recommend ways to improve allocations and infrastructure spending. In so doing, we examine quantitative and qualitative data. Our quantitative analysis uses secondary data on local government budgets, economic growth, employment, and poverty. Data from the Central Bureau of Statistics (BPS/Badan Pusat Statistik) and other institutions shed light on the structure of regional GDP (infrastructure expenditure) and the demographics of employment and poverty trends, among other things. Qualitative information was collected through surveys and interviews.

Data sampling focused on the 2009 to 2011 period and five districts consistently ranked high and five consistently ranked low on infrastructure budget allocation. The high allocation districts are Tuban, Bojonegoro, Malang, Kediri, and Madiun; the low allocation districts are Lumajang, Situbondo, Trenggalek, Pacitan, and Magetan. Interviewees included three small, medium, and large-scale businesses and government officials in each district (regional development agency, Public Works Department of Highways, and local Parliamentary Commission for Development).

Infrastructure spending in East Java in the 2009-2011 period was about 9 percent of total spending, and was usually a third priority after public administration and health care. In districts with high infrastructure allocation, it was a third priority and in districts with low allocation, it was a fourth priority. Infrastructure spending has a positive but insignificant impact on economic growth and employment and is small compared to GDP. The effectiveness of that spending is rooted in development and budget planning. Development planning emphasizes improving transportation for

the population in general not economic activity or productivity, and stakeholders, including local business persons, have little influence on budget planning.

1. Introduction

A common goal of countries is to grow economically. Such growth is measured by changes in national income, one indicator of overall economic activity but not the only one. Economic growth, after all, is a process that unfolds over time not simply a picture of an economy at a given time (Boediono 1992). To be successful, economic growth must be followed by economic development.

According to Samuelson and Nordhaus (2005) economic growth is rooted in (1) human resources, (2) natural resources, (3) capital formation, and (4) technology. By spending on infrastructure, among other things, government has an important role in capital formation, in this case the social overhead capital (SOC) essential to growth. SOC is very important because the private sector will not provide public facilities, and in the absence of a public facility the private sector will not invest. Economic growth and income growth are driven by a variety of public facilities.

Infrastructure is essential to economic growth. In channeling public and private financing, it is an engine of national and regional development. The macroeconomic availability of infrastructure services affects the marginal productivity of private capital. In the context of microeconomics, infrastructure services influence reductions in production costs (Kwik Kian Gie 2002). Infrastructure also influences quality of life and well-being, affecting, among other things, consumption levels, labor productivity access to employment, levels of real wealth, macroeconomic stability, fiscal sustainability, the development of credit markets, and other aspects of labor markets.

Aschauer (2000) finds that the stock of public infrastructure capital is a significant determinant of aggregate total factor of productivity and that investments in the public sector not only improve the quality of life but also increase economic growth and returns to private investment (Snieska and Simkunaite, 2009). According to Estache (2002) in Latin America, the elasticities estimated for the region in the 1990s imply that a 10 percent increase in infrastructure stocks would have increased output by 1.4–1.6 percent—quite dramatic, because a 1 percentage point increase in per-capita income reduces the share of people living in poverty by 0.5 of a percentage point (Garmendia et al., 2004).

Empirically, there was a clear finding that the impact of infrastructure development on economic growth (macro and micro) and the development of a country or region is significant. However, the premise is not easily applicable in Indonesia, especially since our country was hit by the economic crisis in the mid of 1997 that eventually expanded into a multidimensional crisis whose impact can still be felt to today.

To ease burdens on the business sector and spur growth and development, the Government of Indonesia has instituted a number of policies. Its first priority is to have local governments provide

facilities and services that support businesses. Its second priority is to support development of infrastructure by improving state and regional infrastructure budget allocations.¹

This study seeks to identify patterns of infrastructure budget allocation, spending, and impact on infrastructure in East Java, one of Indonesia's richest provinces. Sixteen percent of the population dwells there, and 50 percent of them live in urban areas. In 2008 its GDP per capita was Rp 16.7 million (about US\$1,700), and between 2001 and 2009 its rate of economic growth was 5.2 percent, close to the national average. But, in spite of its large population and strong economy, poverty is still high: 16.7 percent of the people in East Java are considered poor as compared to the national average of 14.1 percent. Total expenditure in the East Java provincial budget rose by 4.3 percent between 2009 and 2010 but the allocation of infrastructure spending declined from 10.7 percent in 2009 and 8.6 percent in 2010 (Table 1-1)

Table 1-1

APBD and Allocation of Infrastructure Budget (Districts in East Java, 2009-2010)

Year	Total Expenditure (Million Rupiah)	Allocation of Infrastructure Budget
2009	33.877.147	10,7%
2010	35.335.179	8,6%

One major obstacle to economic growth is the need for (and shortage of) continuous infrastructure construction. According to the 2010 East Java Growth Diagnostic study (World Bank 2010), major issues affecting business activity are poor quality of infrastructure at the district level, port inefficiency, and lack of electric power for business. The poor condition of district roads and congestion in economic centers can raise transport costs and lower return on investment. It is therefore important to analyze government budget allocations for infrastructure sector in considering the impact of infrastructure on economic growth and employment.

The study (1) identifies patterns of infrastructure budget allocation in East Java, (2) analyzes the impact of infrastructure budgets on economic growth and unemployment in each district and municipality, (3) analyzes factors that influence the effectiveness of the allocation of the infrastructure budget, and (4) recommends ways to improve infrastructure budgeting and spending.

¹ A third priority is to strengthen central and local efforts to protect and assist the middle and lower classes who often face economic difficulties.

2. Methodology

STAGES OF THE STUDY

Desktop Review. We produced a preliminary description of the study after reviewing references and previous case studies, in part to avoid duplicating work. Our literature survey covered macroeconomic theory, the local economy, economic development, the industrial economy, and budgeting. Relevant literature was obtained from universities, government agencies, and online sources. The output of this stage generated questions for research and identified the data needed to answer them.

Instrument Design and Selection. Before developing our survey method, we designed and finalized our survey instrument. (The survey method determines respondent selection and which materials feed into the questions posed to respondents). The instrument was finalized after survey questions were pretested and before the actual field work in order to identify additional information needed to complete the survey instruments.

Determining Location of Respondents (sample) Research. We located the research sample in 10 districts (regencies, *Kabupaten* or *Kotamadya*), selecting five with high infrastructure budgets and five with low infrastructure budgets.

Interviews. Interview were designed to obtain details about the study's main concerns and were conducted to acquire information in the shortest possible time and in a clear and focused format. Researchers began by going directly to the original sources of information to consider what more information would be needed in detail. Interviewers were trained in techniques, including the preparation of interview outlines and the use of structured questionnaires. Main questions were not always asked in the same order because interviews were tailored to circumstances of respondents. Interviewees were parties directly and indirectly related to the study. Data obtained from these interviews related to infrastructure (roads and irrigation) and the relationship with economic growth and unemployment.

Report Writing, Review, and Finalization. We drafted the report outline on the basis of information from secondary data and a finding matrix based on a clustering problems and study locations. The draft report was presented to and discussed with the SEADI team, who provided excellent advice for the preparation of the final report. The final report reflects this feedback.

RESEARCH METHODOLOGY

Sampling Method and Location. We sampled data for the 2009 to 2011 period from 10 districts, five consistently ranked high and five consistently ranked low in infrastructure budget allocation. The high allocation districts are Tuban, Bojonegoro, Malang, Kediri, and Madiun; and the five low allocation

districts are Lumajang, Situbondo, Trenggalek, Pacitan, and Magetan. Data from each were linked to impact on economic growth and unemployment. See Figures 2-1 and 2-2.

Figure 2-1
High Allocation Budget Infrastructure

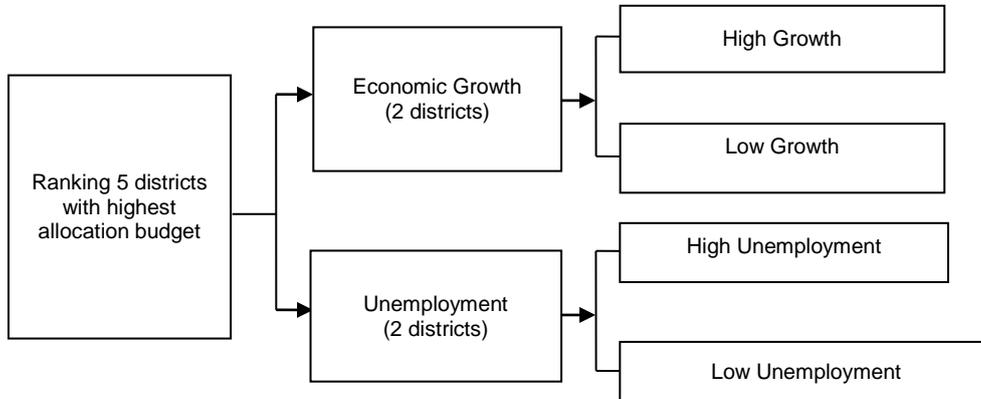
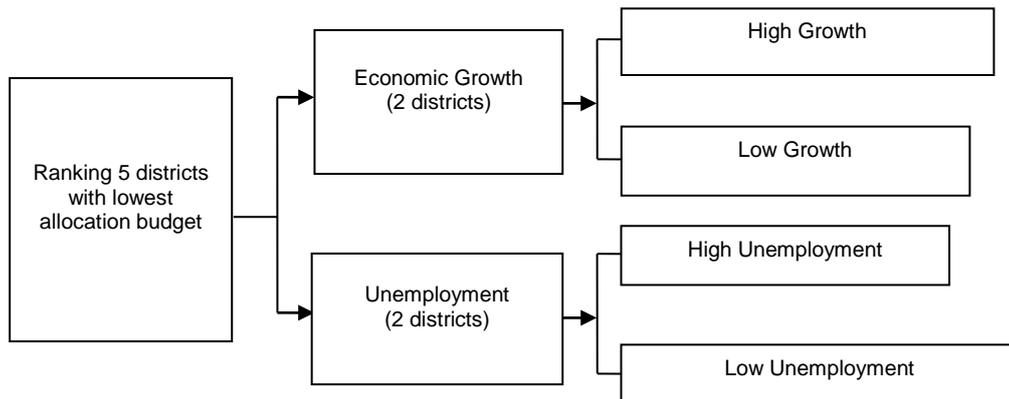


Figure 2-2
Low Allocation Budget Infrastructure



Research Respondents. Respondent in each district consisted of local government officials (in the Bappeda, or local development agency, Public Works, Department of Highways, and in the local Parliamentary Commission for Development) and three small, medium, and large-scale entrepreneurs. See Table 2-1.

Table 2-1
Respondent Composition

District	Respondent	
	Government DPRD	Private Sector
HIGH ALLOCATION DISTRICTS		
Tuban	Bappeda (1 respondent) Dinas PU Binamarga (1 Section Roads and Bridges)	Business (2 small, 1 medium)
Bojonegoro	Bappeda (1 respondent) Dinas PU (1respondent)	Business (2 small, 1 medium)
Malang	Bappeda (1 respondent sector infrastructure and development of the region area) Dinas PU (1 respondent) Komisi B Development (1 respondent)	Business (2 small, 1 medium)
Kediri	Bappeda (1 respondent sector infrastructure and development of the region area) Dinas PU Bina Marga (1 respondent) Komisi B Development (1 respondent)	Business (2 small, 1 medium)
Madiun	Bappeda (1 respondent) Dinas PU Bina Marga (1 respondent)	Business (2 small, 1 medium)
LOW ALLOCATION DISTRICTS		
Lumajang	Bappeda (1 respondent) Dinas PU Bina Marga (1 respondent) Komisi B Pembangunan (1 respondent)	Business (3 small)
Situbondo	Bappeda (1 respondent) Dinas PU Bina Marga (1 respondent)	Business (2 small, 1 medium)
Trenggalek	Bappeda (1 respondent) Dinas PU (1 respondent) Komisi B Development (2 respondent)	Kadinda (1 respondent) Business(2 small, 1 medium)
Pacitan	Bappeda, bidang physical dan prasarana (1 respondent) Dinas PU (1 respondent)	Business (2 small, 1 medium)
Magetan	Bappeda (1 respondent) Dinas PU (1 respondent)	Business (2 small, 1 medium)

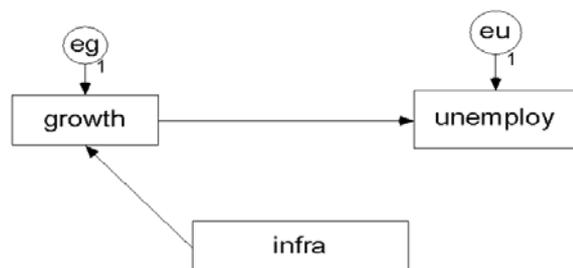
Technical Analysis. For technical analysis we relied on a quantitative descriptive method. Quantitative analysis was based on secondary data on economic growth, unemployment rates, and infrastructure spending. Such data are estimated using path analysis of observations from 2009 to 2011. The path analysis model is shown in the following equation:

$$\text{infra} = b1 * \text{growth} \dots \dots \dots (1)$$

$$\text{growth} = b2 * \text{unemploy} \dots \dots \dots (2)$$

- Explanation:
- unemploy = rate of unemployment
 - growth = economic growth
 - infra = allocation of infrastructure spending
 - i,t = district, year

Figure 2-3
Framework of Path Analysis



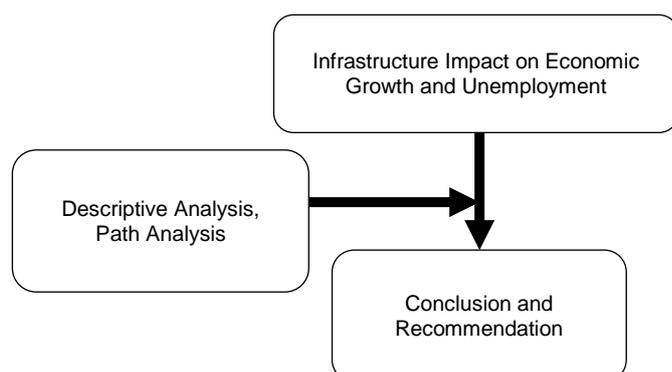
Data. This study uses primary and secondary data. Primary data came from in-depth interviews with government respondents who have responsibility for and capability in planning, planning disposition mechanisms, budgeting, reporting, monitoring, evaluation of infrastructure budgets (roads), and factors that influence the effectiveness of the allocation of the infrastructure budget (roads). Secondary data were used to determine the location of sampling and the district profile. See Table 2-2. Secondary data on the impact of local infrastructure budget allocation on business activities were also obtained from employers.

Table 2-2
Secondary Data

Data	Description	Data Source
Allocation of infrastructure budget	Rate of infrastructure spending to total spending	Public works office in the district
Unemployment	Rate of unemployment to labor force	BPS, calculated
Economic growth		BPS, calculated
Length and quality of road	Length and quality of district roads	BPS, calculated
Large of irrigation and trajectory	Large of irrigation	BPS, calculated

Research Design Framework. The research framework of infrastructure (roads) impact on economic growth is shown as follows.

Figure 2-4
Research Design Framework



3. Overview of Study Location

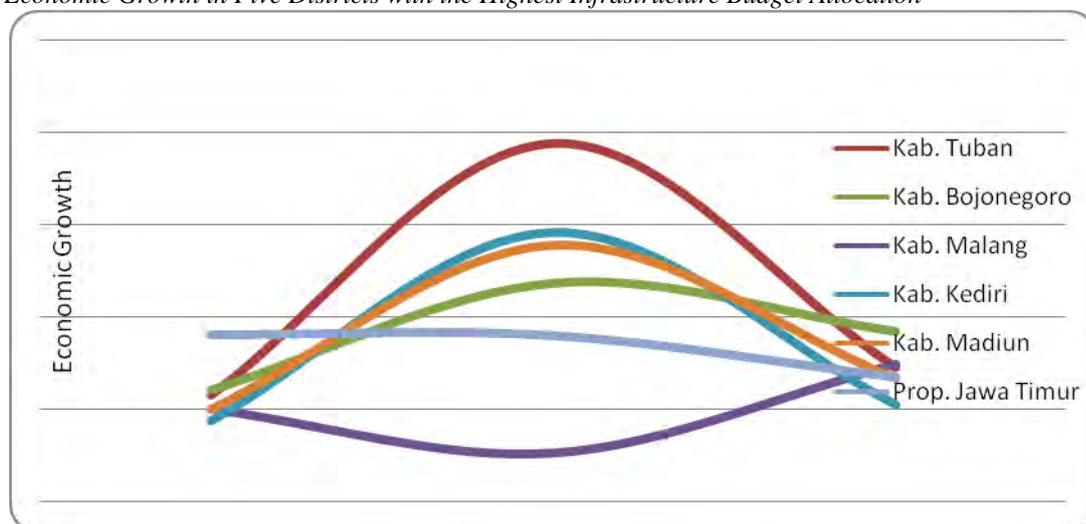
ECONOMIC GROWTH

Five Districts with Highest Infrastructure Allocation

Economic growth in the five districts with the largest infrastructure budget (Tuban, Bojonegoro, Malang, Kediri, Madiun) has been variable. In 2009, growth reached about 5 to 6 percent, approximately equal to the East Java average. Then, along with a broad improvement in economic conditions, growth in Tuban, Bojonegoro, Kediri, and Madiun increased significantly. Malang, however, experienced a slowdown. Then, in 2011, growth in Tuban, Bojonegoro, Kediri, and Madiun slowed while growth in Malang accelerated. On average, economic growth in these districts varied between 6 percent to 9 percent during 2009, 2010, and 2011, similar to average economic growth in East Java province during the same period.

Figure 3-1

Economic Growth in Five Districts with the Highest Infrastructure Budget Allocation



SOURCE: Indonesia Statistic Bureau, 2011

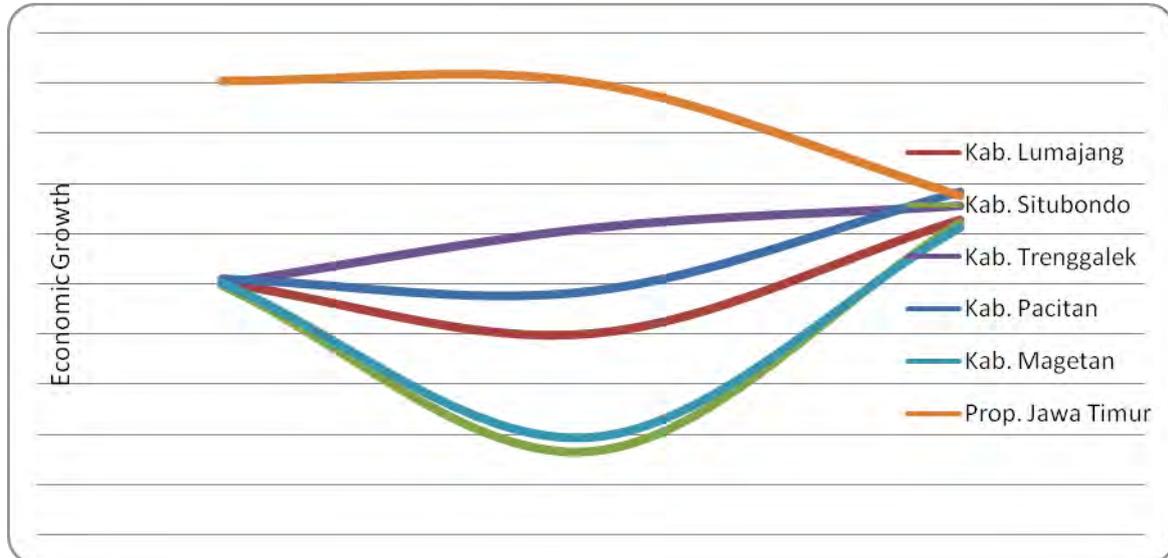
Five Districts with Lowest Infrastructure Budget Allocation

Economic growth in the five districts with the smallest budgets for infrastructure also fluctuated between 2009 and 2011. In 2009, economic growth reached only 4 percent to 5 percent, well below the rate of economic growth in East Java as a whole (about 9 percent). In 2010, growth in Lumajang, Situbondo, Pacitan, and Magetan tended to slow to 1 percent to 4 percent, while growth in Trenggalek rose to about 6 percent. In 2011, improvements in economic conditions encouraged economic growth,

which reached 6 percent in all five districts. Still, economic growth in these districts ranged between 5 percent to 7 percent, below the 6 percent to 9 percent average growth of East Java in the period.

Figure 3-2

Economic Growth in Five Districts with the Lowest Infrastructure Budget Allocation



SOURCE: Indonesia Statistic Bureau, 2011

ECONOMIC STRUCTURE (SECTORAL)

Agriculture, with a district percentage of GDP of between 25 percent to 36 percent, dominated the economic structure of all districts in the sample. The contribution of other sectors such as manufacturing or services, varied. Across the ten districts, the dominance of agriculture was significantly higher than the all-province figure of 16 percent. (Table 3-1). At the provincial level, the focus of the economy of East Java is manufacturing (27 percent). Policy discussions across the province have often emphasized the need to promote manufacturing because only in the districts of Kediri, Malang, and Tuban had the GDP percentage of manufacturing exceeded 20 percent. The services sector also needs attention because the average service sector in most districts is high.

DEMOGRAPHY AND EMPLOYMENT

All districts in the sample have experienced varying demographic conditions and have large working age—or “productive age” populations. A high population of working age people will always be accompanied by a high labor force. The availability of productive age population signals huge labor supply potential at the level of provinces and districts or cities. Districts with relatively large labor forces, such as Malang and Kediri, are capable of supplying a total productive workforce of more than 1 million. See Table 3-2.

The unemployment rate in the 10 districts ranged from 2 percent to 4 percent. The highest unemployment rate reported was in Situbondo (4.7 percent) where the size of the workforce was only 360,000. The lowest rate was reported in Pacitan (2.7 percent), but this is due simply to the labor force being only 350,000. In general, the unemployment rate in all ten districts was below the provincial rate of 4.1 percent. Only in certain districts (such as Bojonegoro, Malang, Kediri, Situbondo) was the unemployment rate above the province rate but even in these the rate was still

around 4 percent. Clearly, an abundant labor force does not have been accompanied by a maximum number of jobs.

Table 3-1
Economic Sector Share 10 Districts (% of District GDP)

Districts	Basis Sectors (% of District GDP), 2010		
	Agriculture	Manufacturing	Services
East Java Province	16	27	38
HIGH ALLOCATION			
Tuban	25	25	23
Bojonegoro	28	9	30
Malang	26	22	38
Kediri	28	23	39
Madiun	36	4	47
LOW ALLOCATION			
Lumajang	34	14	35
Situbondo	31	10	43
Trenggalek	39	6	41
Pacitan	37	4	29
Magetan	30	9	45

NOTE: Services include trade, hotels and restaurants. Figures are rounded up.

SOURCE: Indonesia Statistic Bureau and Bank Indonesia, 2011

Table 3-2
Demography and Employment Indicators, 2010

District	Number of Labor Force	Number of Productive Population	Unemployment Rate (%)
East Java Province	19,527,051	28,268,825	4,1
HIGH ALLOCATION			
Tuban	599,175	856,499	4,1
Bojonegoro	629,677	927,687	4,2
Malang	1,255,967	1,839,891	4,6
Kediri	763,277	1,121,830	4,5
Madiun	347,544	510,906	3,4
LOW ALLOCATION			
Lumajang	531,330	764,302	2,7
Situbondo	360,595	502,353	4,7
Trenggalek	387,421	521,436	3,2
Pacitan	350,337	422,086	2,7
Magetan	382,001	485,094	3,2

SOURCE: Department of Employment and Transmigration and Indonesia Statistic Bureau, 2011.

4. Infrastructure Profile of Study Area

Infrastructure services are crucial to supporting economic development and improving quality of life. Infrastructure projects, however, are often technocratic and technique-based, and fail to meet objectives of socioeconomic development.

ROADS

One function of roads is to provide the interregional connectivity necessary for the distribution of goods and movement of people. In terms of connectivity, district roads in East Java consist of several classes based on the hierarchy of the level of government. The length of roads by road class are shown in Table 4-1.

Table 4-1
Length of Road in East Java by Level of Authority Authority

Authority	Length of Roads (Km)		Share (%)	
	2000	2010	2000	2010
Country (national level)	26.272	38.570	7	8
Province	46.781	53.291	13	11
District/city	282.898	395.453	79	81
Total	355.951	487.314	100	100

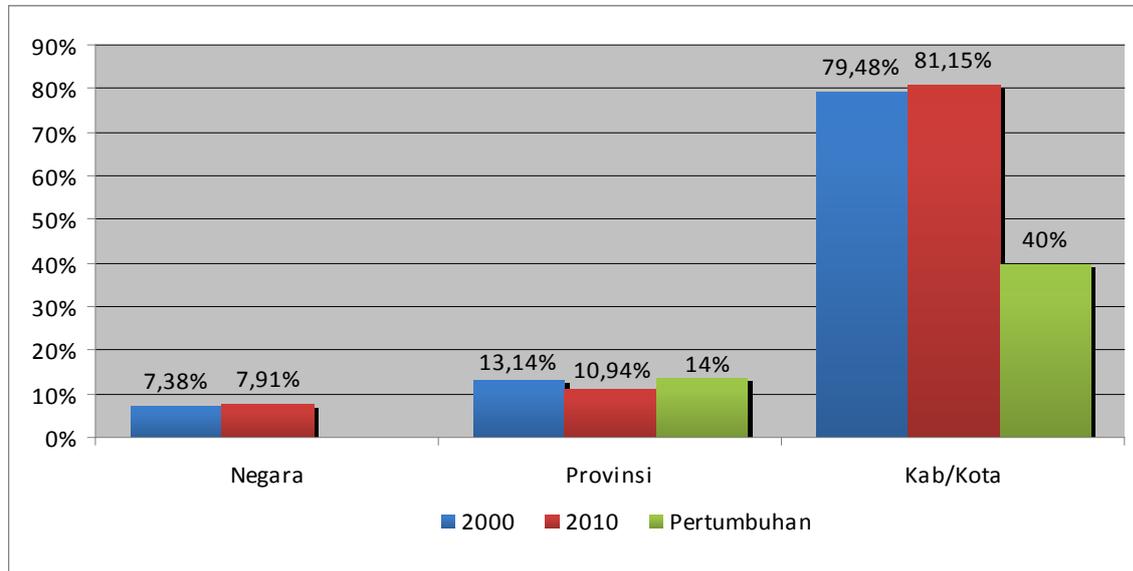
SOURCE: Ministry of Public Works and Government Public Works Prov. / District / City

The quality of infrastructure, such as roads and irrigation, needs to be measured to determine the actual conditions and find the best policy solutions. The five districts with the highest infrastructure budget allocation are Tuban, Bojonegoro, Malang, Kediri, and Madiun. However, the highest budget allocation does not guarantee improvement in infrastructure even though such a result might be expected given the magnitude of the allocation. See Figure 4-1.

Forty-five percent to 75 percent of the road network across the districts (including low and high infrastructure-spending districts) are of good quality. The road quality in the sample ten districts is above average for East Java, which had 19 percent of its roads classified as “good” in 2011. The proportion of "fair " roads in the sample is below "good," ranging between 15 percent and 35 percent (below East Java’s average of 59 percent). The percentage of damaged-roads quality in the ten sample districts is similar to percentages across East Java as a whole (20 percent). There are still roads in

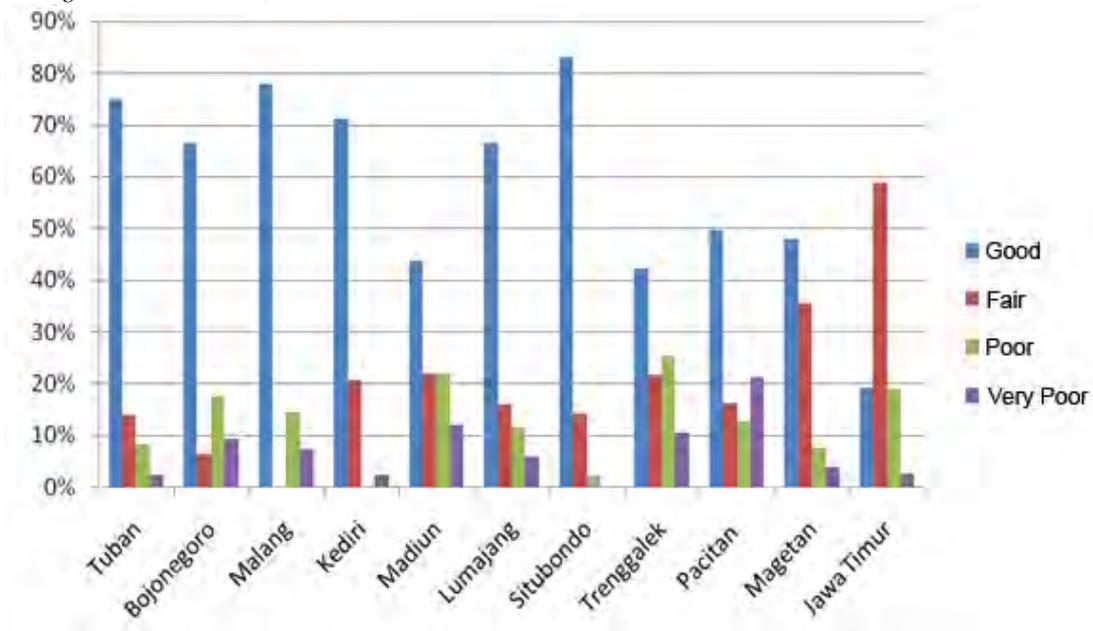
extremely damaged condition (very poor), but the percentage for the sample is below the average for East Java (only 3 percent). See Figure 4-2.

Figure 4-1
Road Network between 2000 and 2010



SOURCE: Indonesia Statistic Bureau, 2011

Figure 4-2
Average Road Condition, 2011



SOURCE: Indonesia Statistic Bureau, 2011

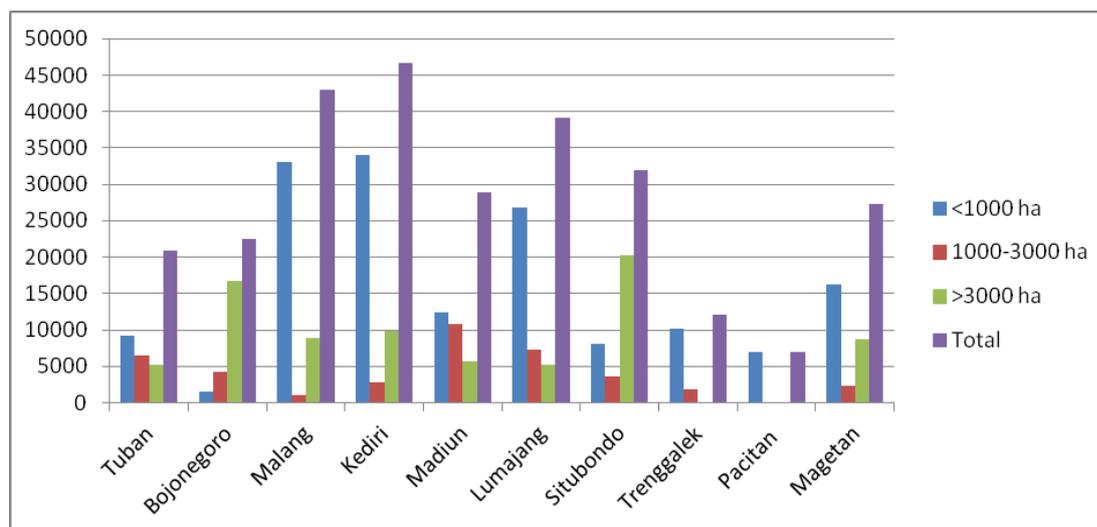
It appears that the size of spending allocation for infrastructure does not guarantee road quality because quality is often influenced by other factors (such as climate, topography, soil, and quality of

initial construction). For instance, the road network in Madiun, a high infrastructure budget allocation district, is inferior to that in Situbondo and Lumajang, both low allocation districts. Only 44 percent of roads in Madiun are considered to be in good condition, while 83 percent in Situbondo and 67 percent in Lumajang are. Only certain low allocation districts, such as Pacitan and Trenggalek, have poor quality roads. Damaged-road conditions in the two districts—respectively 21 percent and 11 percent—are high compared to other districts.

IRRIGATION

Districts with the highest infrastructure budget allocation do not necessarily have extensive irrigation area. For example, Tuban with a high infrastructure budget allocation does not have sufficient irrigated areas while low allocation Situbondo and Lumajang are better served, with total irrigated areas of 39,190 ha and 31,939 ha, respectively. The irrigated area in Tuban only covers 20,855 hectares or 53 percent of the irrigated area in Lumajang. See Figure 4-3.

Figure 4-3
Areas of Irrigation Coverage, 2011



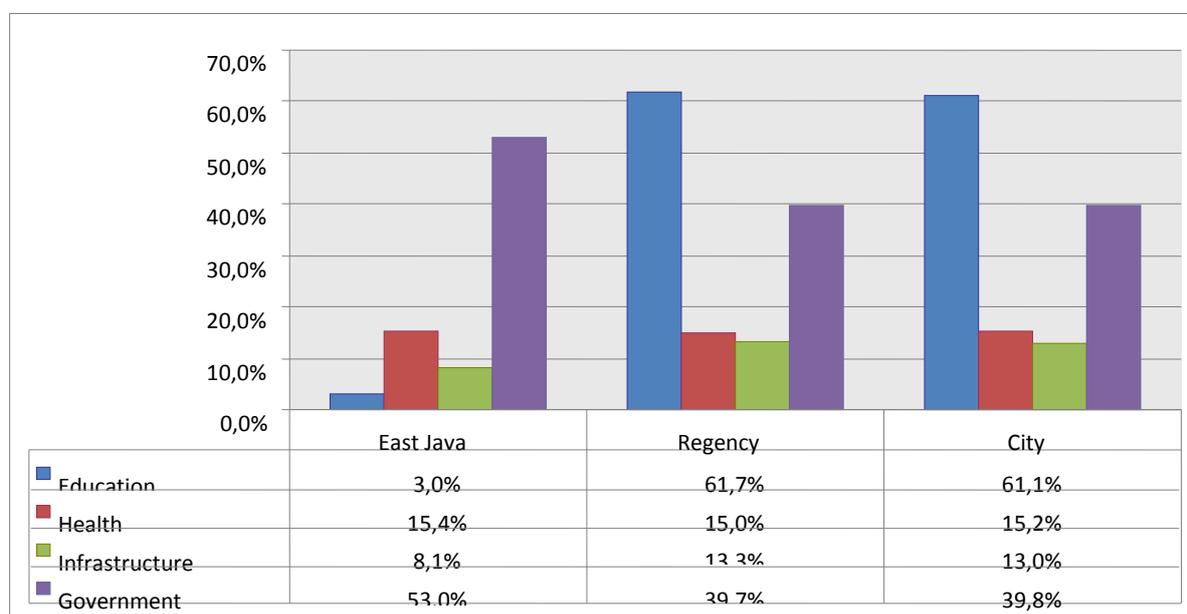
SOURCE: Indonesia Statistic Bureau, 2011

5. Regional Infrastructure Spending Allocation

INFRASTRUCTURE SPENDING STRUCTURE

Infrastructure spending is the fourth priority in budget allocation, after education, government administration, and health programs. Allocation structure tends to be the same across the districts and cities of East Java. Educational programs are a priority in districts and cities. At the provincial level, educational programs are a priority although direct spending on education seems to very small. This is partly because salary costs for teachers and staff are included in the general government component for the province.

Figure 5-1
Comparison of Average Expenditure Allocation in East Java Province (2009-2011)

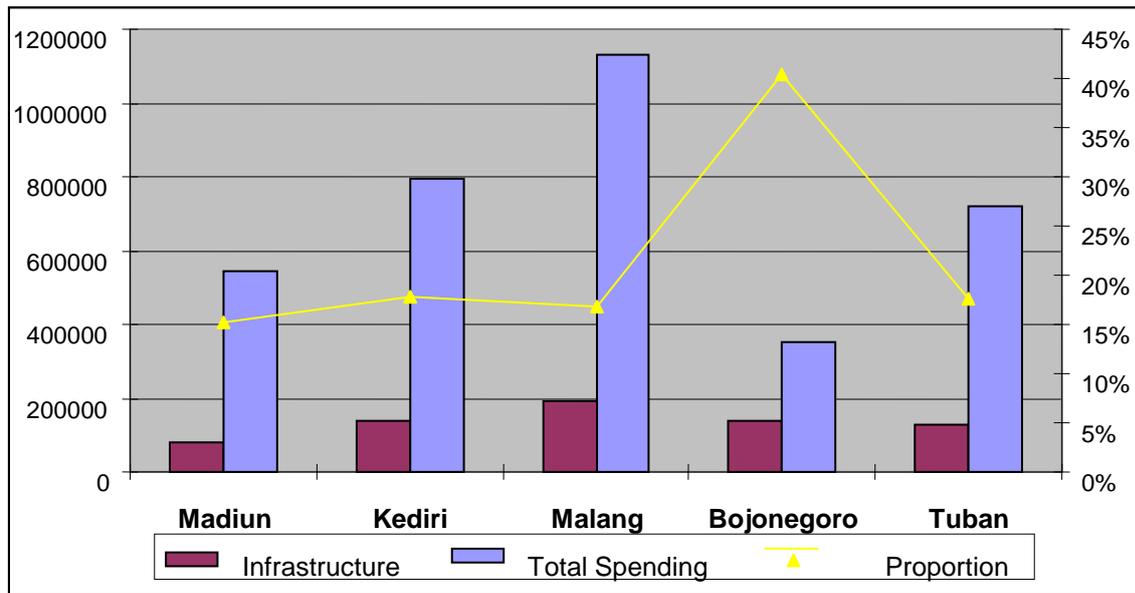


SOURCE: Ministry of Finance (adjusted)

The structure of budget spending between districts with high and low infrastructure allocation tends to be the same. For districts with a high allocation for infrastructure, the reported share does not really represent the exact composition when the figure is measured in terms of percentage of infrastructure budget spending to total regional budget spending (APBD).

Figure 5-2

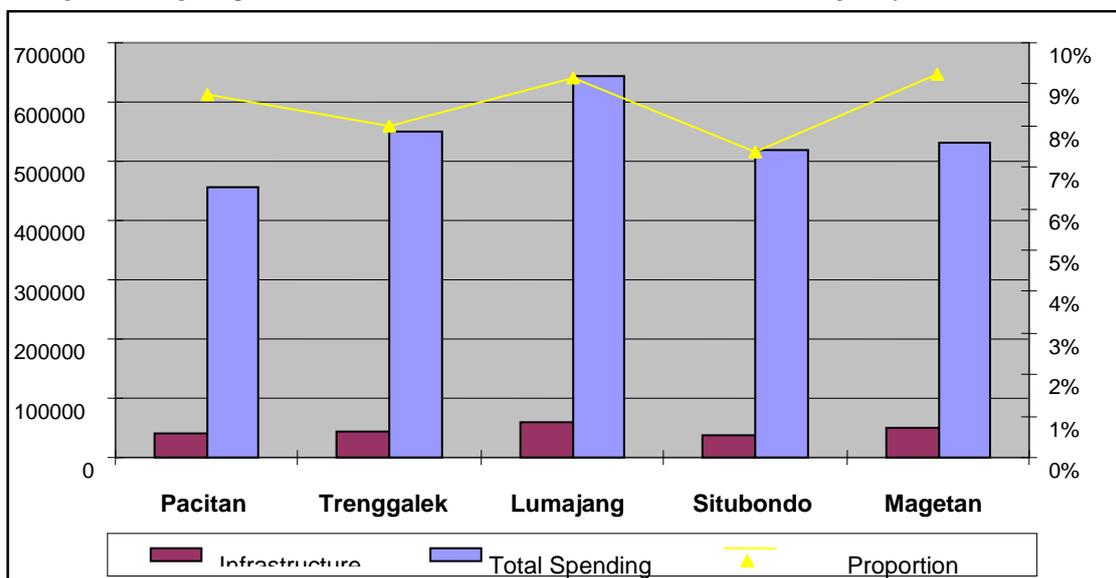
Average Expenditure Allocation in Five Districts with Highest Infrastructure Budgets (2009-2011)



SOURCE: Ministry of Finance (Adjusted)

Figure 5-3

Four Largest Average Expenditure Allocations in Five Districts with Lowest Budget Infrastructure (2009-2011)



SOURCE: Ministry of Finance (Adjusted)

Infrastructure spending shown in the Regional Activity and Budget Plan (RKAD) is for both physical and nonphysical spending. The pattern of infrastructure spending in terms of physical and nonphysical allocation can be seen in Table 5-1. Among the highest allocation districts, the highest nonphysical

allocation is in the district of Madiun (23 percent). Within these five high allocation districts, physical construction dominated the allocation for infrastructure spending.

Table 5-1
Structure of Infrastructure Spending in the Five High Allocation Districts (%)

	Tuban	Bojonegoro	Malang	Kediri	Madiun
Physical	86.9	81.9	89.1	98.1	76.7
Of which ...Maintenance	29.8	12.9	39.5	38.5	34.0
Of which ...Construction	57.0	69.0	49.5	59.6	42.6
Nonphysical	13.2	18.1	10.1	1.9	23.4
TOTAL (physical + nonphysical)	100	100	100	100	100

The districts with low infrastructure spending tend to have pattern of physical spending optimization. On average in the last three years, physical spending for maintenance has priority in the Magetan, Situbondo, and Pacitan. Meanwhile, in Lumajang and Trenggalek, physical spending on construction received higher priority. See Table 5-2.

Table 5-2
Structure of Infrastructure Spending in the Five Low Allocation Districts (%)

	Magetan	Lumajang	Situbondo	Trenggalek	Pacitan
Physical	83.6	85.0	94.4	90.8	80.6
Of which ... Maintenance	53.8	37.8	62.8	27.0	45.6
Of which ...Construction	29.9	47.2	31.6	63.8	35.0
Nonphysical	16.4	15.0	5.6	9.3	19.4
TOTAL (physical + nonphysical)	100	100	100	100	100

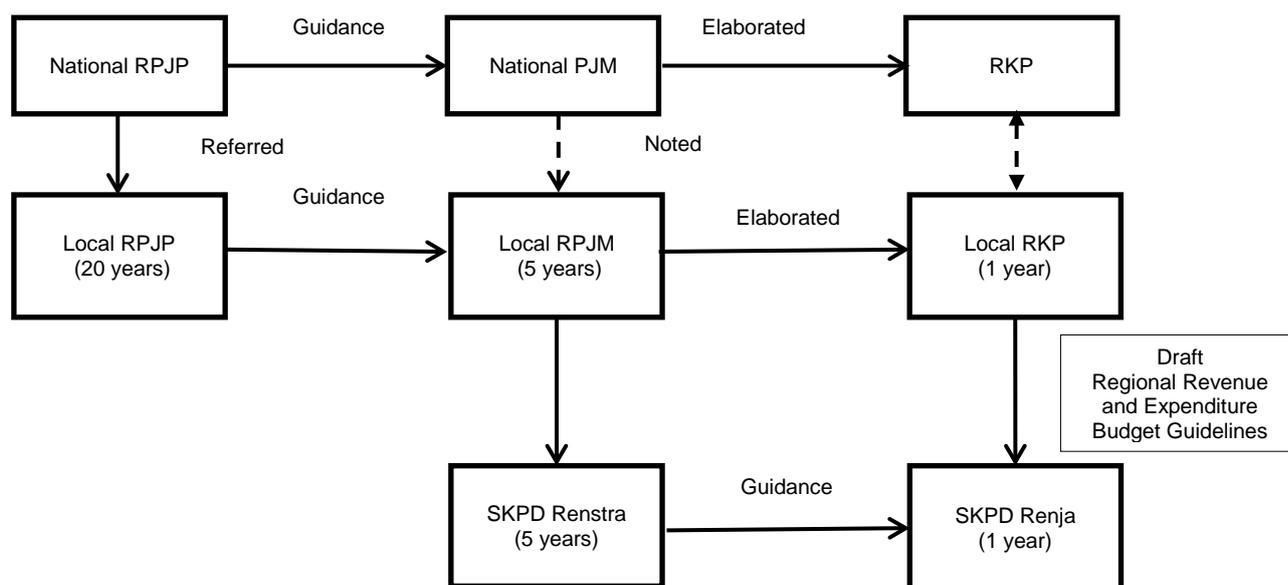
INFRASTRUCTURE BUDGET PLANNING PROCESS

The pattern of government spending overall and infrastructure spending in particular is related to the budget process—mechanisms, planning, monitoring, and evaluation. Regional mechanisms that influence infrastructure spending are based on Law No.25 2004 regarding the National Development Planning System and could be described as follows:

In Indonesia's national planning process, regional long-term development plans (RPJP) at the district level need to be linked to the national RPJP. Similarly, the regional medium-term development plans relate to the national RPJM. Regional RPJM documents elaborate on the regional government activity planning documents (known as the RKP).

Planning at the district (regional) level for the RPJP and RPJM is conducted by the Bappeda agencies (the regional planning and development agencies). In this framework, regular plans—known as the strategic planning (Renstra) regional working unit (SKPD) plans—executed by each SKPD are set out in accordance with the regional RPJM. Work planning activities (RENJA) are carried out by the SKPD based on the Renstra SKPD and refer to regional RKPs. (Hence, RENJA SKPD Department of Public Works plans related to maintenance, construction, and supporting infrastructure are based on the Renstra SKPD for the Department of Public Works and refer to Regional RKP.) See Figure 5-4.

Figure 5-4
Regional Planning Mechanism



In the process of infrastructure budgeting, the role of each SKPD starts with budget planning. The Department of Public Works (PU) determines the process of infrastructure planning. Reflecting this process, planning consists of bottom-up and top-down processes. In the 10 sample districts, planning is carried out as a combination of the two types. Consultative forums (Musrenbang) are part of the planning mechanism at the village, subdistrict, and district levels (Table 5-3).

Table 5-3
Infrastructure Planning Mechanism Forum

Pattern	Related Party	Role
Musrenbang Desa (Village assembly)	Village authorities and people	Proposed infrastructure program
Musrenbang Kecamatan (Subdistrict assembly)	Subdistrict authorities and people	Proposed requirements, discussed indicative limit
Musrenbang Kabupaten (District assembly)	Regent, Bappeda, related SKPD and DPRD	Synchronized the result of musrenbang with renstra SKPD, determined and follow up.

At the district level and above, infrastructure planning is largely a top-down process. But at the district level there is some synchronization of bottom-up planning in village and subdistrict meetings (Musrenbang) and the strategic planning of the SKPD. There are then discussions with the business community so that business persons are not directly involved in the planning process but are consulted.

The pattern of top-down planning is strong in areas related to planning from central (national) level. Top-down mechanisms at the national level require connectivity with, for example, planning for state and district roads. Hence, the scheme of financial assistance for the construction of national and provincial roads to district requires consultation

Local Parliaments, or DPRD, ensure that local government runs in accordance with local aspirations. In the budgeting process, they oversee the budgeting mechanism but do not get involved in technical details. Their bottom-up role takes place only at the district Musrenbang meetings. DPRD do not oversee village initiatives although there are social mechanisms for adjustments from the bottom up to influence the overall process. Moreover, in district-level infrastructure budgeting, DPRD members may suggest infrastructure budgeting that reflects the views of their constituents.

“Regional Infrastructure Budget Planning Process is dominated by *top down planning*. Based on business association and several business people, they are not involved in the regional planning process”.

Bappeda (district planning unit) :“ The mechanism of planning district road infrastructure must connect with provincial and national roads. The construction of district roads as there is access to provincial roads. ”

PRIORITY IN THE BUDGET ALLOCATION

On the basis of districts’ official budgets, priorities are education, administration, and public works. This is not consistent with the priority for infrastructure listed stated in the regional RPJM document. In the high infrastructure allocation districts, spending on public works is ranked as the third priority. Nevertheless, this approach is not consistent with the priority given infrastructure programs in the RPJMD national planning document. In the five low infrastructure allocation districts, budget priorities are education, administration, health, and public works. It seems that in all sample districts, there is a lack of consistency between district budget spending programs and national planning programs. This indicates that district programs are being driven by a concern to simply spend monies and achieve budget absorption targets.

Due to budget constraints, budget allocations at the regional level (APBD budgets) are used for unavoidable expenditures such as education and health.

Table 5-4
Infrastructure Development Priority

Region	Infrastructure Program Priority (RPJMD)	Infrastructure Budget Priority (APBD)
Tuban	3	3
Bojonegoro	10	3
Malang	3	3

Region	Infrastructure Program Priority (RPJMD)	Infrastructure Budget Priority (APBD)
Kediri	7	3
Madiun	4	3
Magetan	6	4
Lumajang	(*)	4
Situbondo	Not stated	4
Trenggalek	4	4
Pacitan	5	4

Notes : (*) data is not obtained

Table 5-5
Infrastructure Budget Outcome Indicator

Region	Infrastructure Budget Outcome Indicator
Tuban	Quality condition of bridges and roads
Bojonegoro	The road length and quality, numbers of bridges in good shape, increasing percentage of good condition transportation facilities
Malang	New construction and stabilization of roads / bridges to support economic activities, tourism and remote areas.
Kediri	Development of infrastructure network to support agriculture
Madiun	Development of road infrastructure and bridges attention to regional spatial planning and development of the surrounding area especially the border areas. The increased smoothness and transportation of people and goods
Magetan	Improvement of transportation infrastructure, irrigation infrastructure management
Lumajang	Data are not obtained
Situbondo	Enhancement of road condition and quality
Trenggalek	Main priority in the context of development acceleration and public economic enhancement
Pacitan	Improvement of transportation infrastructure, irrigation infrastructure management.

SOURCE: Districts (RPJMD Kabupaten), Adjusted.

6. Impact of Infrastructure Expenditure on Economic Growth and Unemployment

On the basis of an aggregate statistical analysis of the 38 second-level districts or cities (*kabupaten* or *kotamaja*) across East Java, increased infrastructure spending may lead to increased economic growth—but the increase in growth appears to be insufficient to reduce unemployment.

MODEL RESULTS

Districts with High Infrastructure Allocation. Spending on infrastructure can significantly influence economic growth, but that growth is insufficient to reduce unemployment. These districts (which have a relatively high spending on infrastructure) are larger than districts with low infrastructure spending. These areas thus have a larger budget to support infrastructure projects. Infrastructure projects in these districts are capable of promoting economic growth, particularly during the construction phase. But, again, economic growth is not enough to reduce unemployment in these districts. And infrastructure spending has been focused on urban areas, thus generating further growth in the formal sector. Unemployment has continued in rural areas.

Districts with Low Infrastructure Allocation . Low infrastructure budget allocations are insufficient to generate economic growth. Low growth, in turn, is not sufficient to reduce unemployment. Districts with low infrastructure budget allocations tend to have agriculture-based regional economies. The rural areas depend on agriculture sector so the capacity to grow quickly is limited.

PATTERN OF INFRASTRUCTURE SPENDING AND ECONOMIC GROWTH BASED ON REGIONAL CHARACTERISTICS

Characteristics of the districts surveyed (such as capacity for planning, leadership, district economic structure, and composition of the local parliamentary assembly) do not seem to influence the allocation of infrastructure spending. This suggests that the characteristics of district spending reflect pragmatic considerations. It seems that local decision-makers must make compromises in determining budgetary policy. This is reflected in the level of consistency (which is not always high) between planning and actual allocation. Professional planners must often compromise with the vision and mission of the district head. Similarly, the senior policymakers must often also compromise with the interests of factions in the local district parliaments.

In the allocation infrastructure spending, leadership factors seem more prominent than other factors. Leadership factors are more related to the knowledge of the regional head about the importance of infrastructure for economic development rather than the background of the regional heads alone. Strong leadership in this area will encourage local officials to work with professional planners and

communicate with the parliament. The challenge, however, is that many regional heads have not seen a significant role for the development of infrastructure and have tended to put forward more populist policies to support education and health despite the fact that the effectiveness of activities in these areas is uncertain.

Economic growth in the various districts has been more influenced by external factors than by internal efforts. In fact, economic growth in districts and cities in East Java is more influenced by economic growth at the provincial and national levels rather than the local level. For example, high economic growth in the Tuban district does not reflect local development policy but is most likely due to mega projects supported by the national government in Tuban. Likewise, the high economic growth in Pacitan reflects national spending on power projects. These developments reflect national demand rather than greater allocations of local expenditure designed to boost aggregate demand in the area. This is evident from the relatively dominant role of trade, hotels, and restaurants.

Reductions in the local unemployment rates seem to be more influenced by economic structures in the districts rather than local spending on infrastructure. In areas where the share of agriculture and manufacturing in regional GDP is large, the unemployment rate is low. The presence of a national mega project is also very influential in reducing unemployment.

Table 6-1
Allocation Pattern of Regions based on Regional Characteristics

Region	Variable		District Characteristics			
	Unemployment	Growth	Planning Capacity	Leadership	Main Sectors	Political Party
HIGH INFRASTRUCTURE SPENDING						
Tuban	Low	Low	Engineering	Business Person	Manufacture and agriculture	5 factions
Bojonegoro	Low	Middle	Economic	Academic	PHR and agriculture	8 factions
Malang	High	High	Economic	Bureaucrat and activist	PHR and agriculture	6 factions
Kediri	Middle	High	Law and economic	Bureaucrat	PHR and agriculture	6 factions
Madiun	High	Middle	Law and economic	Bureaucrat	PHR and agriculture	5 factions
LOW INFRASTRUCTURE SPENDING						
Lumajang	High	Middle	Engineering	Bureaucrat	PHR and agriculture	5 factions
Situbondo	High	Low	Economic		PHR and agriculture	4 factions
Trenggalek	Low	Low	Economic	Bureaucrat	PHR and agriculture	6 factions
Pacitan	Low	High	Engineering	Bureaucrat	PHR and agriculture	5 factions
Magetan	Middle	High	Economic	Political party	PHR and agriculture	6 factions

7. Conclusions and Policy Recommendations

The pattern of infrastructure spending in East Java shows that

- Infrastructure spending in East Java in three years averaged around 9 percent of the provincial and district budgets. Infrastructure is the third spending priority after public administration and health. In districts that spend the most on infrastructure, it is the third priority; in districts where infrastructure is given less emphasis, spending on the sector is the fourth priority.
- Infrastructure spending has a positive, though insignificant impact on economic growth and regional unemployment. Statistical analysis indicates that infrastructure spending does not affect these variables significantly. The main influence on economic growth and regional unemployment are variations in GDP.
- The influence of infrastructure spending on economic growth and employment is related to the processes of development and budget planning.
- Infrastructure development planning had tended to emphasize steps designed to improve transportation. The planning process has not yet paid particular attention to issues concerning the promotion of economic activity and local economic development.
- Regional development planning for physical infrastructure does not have strong connections with government plans that have been announced to support the development of higher-quality products and regional economic development centers.
- There are indirect physical infrastructure development expenditures in the infrastructure budget planning process.
- Stakeholders, particularly local business persons, are not very involved in budget planning at the regional level.

RECOMMENDATIONS

- Infrastructure development planning could be improved by relating spending plans more directly to plans to develop local economic potential.
- Efficiency of infrastructure budgets, particularly in the allocation of nonphysical development for the allocation for physical development, could be improved.
- More attention should be given to monitoring road functionality with the aim of minimizing road damage and reducing the need to allocate significant funds for maintenance.

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Appendix. Path Analysis Estimation

1. Model for districts with high and low allocations for infrastructure

Regression Weights: (Group number 1-Default model)

			Estimate	S.E.	C.R.	P	Label
Growth	<---	Infra	,346	,201	1,722	,085	
Unemploy	<---	Growth	10,536	15,422	,683	,495	

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	,009	,710	-,742	,118
Saturated model	,000	1,000		
Independence model	,011	,626	,253	,313

Model of test of economic growth on unemployment (East Java)

Summary Output

Regression Statistics	
Multiple R	0,535786407
R Square	0,287067073
Adjusted R Square	0,260040046
Standard Error	4,168096092
Observations	38

ANOVA

	Df	SS	MS	F	Significance F
Regression	1	258,8284	258,8284	14,89829	0,000453
Residual	37	642,8019	17,37303		
Total	38	901,6303			

	Co-efficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95,0%	Upper 95,0%
Intercept	0	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
X Variable 1	18,85959101	4,886119	3,85983	0,000439	8,959373	28,75981	8,959373	28,75981

2. Model for districts with high spending on infrastructure

Regression Weights: (Group number 1-Default model)

			Estimate	S.E.	C.R.	P	Label
growth	<---	Infra	1,100	1,186	,927	,354	
unemploy	<---	Growth	-28,760	7,165	-4,014	***	

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	,001	,632	-1,208	,105
Saturated model	,000	1,000		
Independence model	,003	,492	-,016	,246

3. Model for districts with low spending on infrastructure

Regression Weights: (Group number 1-Default model)

			Estimate	S.E.	C.R.	P	Label
growth	<---	Infra	-3,601	3,408	-1,057	,291	
unemploy	<---	Growth	-1,569	14,962	-,105	,916	

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	,000	,965	,791	,161
Saturated model	,000	1,000		
Independence model	,000	,855	,711	,428