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Infrastructure and human development: the case of Java, Indonesia

Heru Kusharjanto & Donghun Kim

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Abstract

This study examines the relationship between infrastructure and human development in Java, Indonesia, using regency-level 2002–2005 panel data. We find that improving infrastructure significantly enhances human development. In particular, electricity infrastructure has a greater influence on human development than other types of infrastructure, such as clean water, roads or the number of classrooms per student. We find that for every 1% increase in the proportion of households with electricity, the human development index (HDI) increases by 0.01%.

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Notes

1. In this paper, we are mainly concerned with how infrastructure affects human development (or economic development). We nevertheless acknowledge that there is an endogeneity issue between infrastructure and human development in the sense that human development can influence infrastructure and infrastructure can influence human development.
2. Without the lagged HDI variable, the independent variables represent the full set of information that produces an observed outcome $\ln\text{HDI}_{it}$. With the lagged $\ln\text{HDI}$, all the information about the previous history of x_{it} , where $t = 1, 2, \dots, t - 1$, is captured by $\ln\text{HDI}_{it-1}$ and any impact of x_{it} represents the effect of new information. See [Greene \(2008, p. 469\)](#).
3. When we alternatively use the length of paved road instead of total road length, the coefficients in the regression models decrease slightly. The coefficients on total roads range from 0.001 to 0.062 across the full models and from 0.003 to 0.053 in the static models. Meanwhile, the sizes of the coefficient on paved roads range from 0.001 to 0.030 in the full models and from 0.001 to 0.024 in the static models.
4. To check the sensitivity of the results we found, we exclude the four largest urban areas - Jakarta, Semarang, Bandung and Surabaya - as they are likely to have better infrastructure than other areas. We find that our results are robust with the exclusion of these areas. It seems therefore that the relationship between infrastructure and human development holds, in general, across regencies with varying levels of development.

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