Technical and Scale Efficiency of Inpatient Services in District Hospitals in Kerala during 2014-2019

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Abstract

The paper estimates the technical and scale efficiencies of district hospitals in Kerala between 2014 and 2019 using input-oriented Data Envelopment Analysis (DEA) under both Constant Returns to Scale (CRS) and Variable Returns to Scale (VRS). The output was inpatient admissions (IPD) and the inputs were beds, doctors, and nurses. A sensitivity analysis was also performed for both CRS and VRS models. The results of the sensitivity and scale analyses showed that the VRS approach with increasing returns to scale better explained the relationship between inpatient admissions and inputs among district hospitals in Kerala. Further, in the VRS approach, a comparison of average efficiency scores over the years shows that efficiency declined from 0.69 in 2014 to 0.63 in 2019. Along with this, inpatient admissions rose from 28,531 in 2014 to 37,103 in 2016, thereafter declining to 26,208 in 2019. Both these facts implied that the public health sector reforms initiated in Kerala since 2016 were not very effective in either attracting more inpatient admissions or increasing the technical efficiency of district hospitals in its initial phase.

Key Words

Constant returns to scale (CRS), Data Envelopment Analysis (DEA), District hospitals, Inpatient admissions (IPD), Kerala, Variable Returns to Scale (VRS)

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