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Impact of the implementation of the National Health Insurance policy on hospital productivity levels in Indonesia☆

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Abstract

Objective: The purpose of this study was to assess changes in productivity scores of BLUD hospital since the implementation of the National Health Insurance policy in Indonesia from 2014 to 2017.

Methods: The population and sample of the study were all Government General Hospitals with the status of Regional Public Service Agencies in the Province of South Sulawesi with a unit of research analysis being the annual performance of 25 BLUD hospitals in the 2014–2017 period. To analyze the productivity growth rate of the BLUD hospital in South Sulawesi, the Malmquist Total Factor Productivity Index approach was used.

Results: During the 2014–2017 period the average productivity level of hospitals grew by 4%, but the annual analysis showed that the productivity of hospitals continued to decline from year to year, from the 2014–2015 period grew by 7.4%, the 2015–2016 period fell to 4.1% and in the 2016–2017 period only grew by 0.5%.

Conclusion: The results of the study show that since the implementation of the National Health Insurance policy, the level of hospital productivity has continued to decline.

Introduction

At present, the needs and demands for efficient and productive health services have become one of the main issues in health development. This is due to the application of the free market in the health sector and the introduction of the National Health Insurance Program (JKN) policy in Indonesia since 2014.

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Realizing the importance of efficiency in the world of health services, the Indonesian government introduced the General Service Agency Pattern (PK-BLU) for work units that provide services to the community including the hospital. The Government also issued Law Number 44 of 2009 concerning Hospitals which mandated that hospitals established by the Central Government and Regional Government must be managed in the form of Public Service Agencies (BLU) or Regional Public Service Agencies (BLUD). Currently, the number of government hospitals with BLU and BLUD status continues to increase from year to year, in 2014 there were 241 hospitals and up to 2016 increased to 353 hospitals, with the details of 74 hospitals with BLU status and 279 BLUDs.[1,2]

One of the provinces in Indonesia that experienced a significant increase in the number of BLU/BLUD hospitals was South Sulawesi Province. Recorded in 2010 in 24 regencies/cities there were only 10 public hospitals that had BLU/BLUD status but until 2017 it had increased to 27 hospitals or had increased as much as 150%.[1–3] The increase in the number of BLUD hospitals is of course expected to be followed by increasing hospital productivity especially with the implementation of the National Health Insurance System (JKN) since 2014 which forced hospitals to operate more efficiently and productively without reducing the quality of services provided to their customers.

The concept of productivity is basically the relationship between output and input in the production process. Productivity can be measured partially or totally. Total productivity or commonly called the total factor productivity (TFP) measures the relationship between output and several inputs together. The relationship is expressed in the ratio of the output index to the aggregate input index. If the ratio increases mean more output can be produced using certain amount of input, or a number of outputs can be produced using fewer inputs.[4]

In productivity measurement, the most widely used method is the total factor productivity (TFP). This method is used to overcome the weaknesses of efficiency calculations that are more than one input and one output. The purpose of this study was to assess changes in productivity scores of BLUD Hospital in South Sulawesi Province since the implementation of the National Health Insurance policy from 2014 to 2017.

Methods

Population and sample

The study population was all Government Public Hospitals with the status of BLUDs in South Sulawesi Province with the unit of research analysis being the annual performance of 25 hospitals in the 2014–2017 period. The research sample was taken using the total sampling method, so that the total hospital samples taken were 25 BLUD hospitals.

This study took data on hospital performance for 4 years (2014, 2015, 2016, 2017) so that with a total sample of 25 hospitals, the number of DMUs was analyzed with as many as 100 DMUs.

Data collection and analysis

To analyze the productivity growth rate of the BLUD Hospital in South Sulawesi, the Malmquist Total Factor Productivity Index (MTFPI) approach was used. Productivity growth is a measure that shows the rate of change in hospital productivity from 2014 to 2017. Productivity is calculated through the estimation of the Malmquist Productivity Index (MPI) value from hospital with the DEAP 2.1 software application. Productivity Value is Productive ≥ 1 and Not Productive <1. Selection of input and output indicators to measure hospital productivity based on the results of a literature study on the use of inputs and outputs from various results of previous studies.[2,3,5–8] The input indicators of productivity measurement in this study are Building Size, Total Assets, Operating Costs, Pharmacy Costs. While for the output indicator consists of Number of Patients, Number of Laboratory Examinations, Amount of Operation Measures, Total Operating Income, Av-LOS and TOI.

Results

Productivity can be defined as the ability to produce something or the power of production. Achievement of productivity can be seen from the value of Total Factor Productivity Change (TFPCH) and its two components, namely Technological change (TECHCH) and Efficiency Change (EFFCH). Whereas Pure Efficiency Change (PECH) and Scale Efficiency Change (SECH) are sub-components of Efficiency Change. Score in the Malmquist Productivity Index below 1 means that the hospital has decreased productivity. Whereas, if the score is above 1, it means that the hospital has increased productivity.

There are two things calculated in the measurement of the Malmquist index, namely the catch-up effect and the frontier shift effect. The catch-up effect measures the level of efficiency change relative to period 1 to period 2. Meanwhile the frontier shift effect measures the level of technological change (technological change) which is a combination of input and output from period 1 to period 2. The effect of the frontier shift is often referred to as an innovation effect.[9]

MPI is a bilateral index that is used to compare the production technology of two economic elements, and is based on the production function concept that measures maximum production functions with predetermined input limits. MPI has several beneficial characteristics. First, this index is a non-parametric method so it does not require a specification of the form of production function. Second, MPI does not require the assumption of unit production economic behavior such as cost minimization or profit maximization, so it is very useful if the objectives of the producer are different or unknown. Third, the calculation of this index does not require price of input and output data which is often not available. Fourth, MTFPI can be decomposed into two components, namely Technical Efficiency Change (EFFCH) and Technological Change (TECHCH). According to Avenzora (2008) this is very useful because analysis can be done more specifically based on components. Positive EFFCH (positive efficiency change) is evidence that efficiency changes are close to the frontier, while the positive TECHCH

Table 1 Malmquist index summary of firms mean.

Hospital code	EFFCH	TECHCH	PECH	SECH	TFPCH
RS 7303010	1.000	0.934	1.000	1.000	0.934
RS 7311010	1.157	0.903	1.061	1.090	1.045
RS 7308041	1.008	1.096	1.000	1.008	1.105
RS 7302016	1.000	1.046	1.000	1.000	1.046
RS 7317075	1.000	0.942	1.000	1.000	0.942
RS 7325016	1.000	1.154	1.000	1.000	1.154
RS 7317053	1.000	1.022	1.000	1.000	1.022
RS 7371395	0.906	1.055	1.000	0.906	0.956
RS 7371362	0.847	1.090	0.960	0.882	0.924
RS 7371026	0.993	1.032	1.000	0.993	1.024
RS 7371014	1.000	1.156	1.000	1.000	1.156
RS 7309016	1.000	1.058	1.000	1.000	1.058
RS 7373016	1.198	1.061	1.000	1.198	1.270
RS 7310016	1.000	1.090	1.000	1.000	1.090
RS 7372075	1.269	0.897	1.000	1.269	1.139
RS 7315014	0.931	0.909	0.960	0.970	0.846
RS 7301015	1.000	0.921	1.000	1.000	0.921
RS 7314024	1.000	0.947	1.000	1.000	0.947
RS 7314013	1.031	1.193	1.000	1.031	1.230
RS 7307014	1.000	1.052	1.000	1.000	1.052
RS 7312011	1.000	1.028	1.000	1.000	1.028
RS 7305012	1.000	0.936	1.000	1.000	0.936
RS 7318054	1.000	1.081	1.000	1.000	1.081
RS 7313012	1.011	1.113	1.007	1.004	1.126
RS 7313023	1.000	1.087	1.000	1.000	1.087
Geometric mean	1.011	1.029	0.999	1.012	1.040

(positive technological change) is known that technological change is innovation. Then EFFCH can be decomposed into two components, namely Pure Technical Efficiency Change (PECH) and Scale Efficiency Change (SECH).[8]

Based on Table 1, it shows that during the duration of the study, BLUD Hospital in South Sulawesi experienced productivity growth as indicated by TFPCH values above 1, namely 1.040 based on geometric mean results, which means the average growth of hospital productivity during the 2014–2107 period is as much as 4%. The number of hospitals that experienced productivity growth was 17 hospitals (68%). Hospitals that have the highest level of productivity are RS 7373016 with a value of 1270 or growing by 27%. The lowest productivity growth was RS 7317053 with a value of 1.022 or only grew by 2%. The results of the study also showed that there were 8 hospitals (32%) that experienced a decrease in productivity where the highest decline in productivity levels was at RS 7315014 of 0.846 or decreased by 15%.

The results showed that the majority of BLUD hospitals in South Sulawesi Province experienced an increase in productivity during the period of the study period (68%), but the thing to watch out for is if the year-to-year analysis is carried out (Table 2), it is reflected in conditions where there is a decreasing trend in productivity growth in the BLUD Hospital in South Sulawesi Province in general as happened in the 2014–2015 period (TFPCH = 1.074) or grew by 7.4%, but declined in the 2015–2016 interval period (TFPCH = 1.041) or only grew by,[2] 1% and the period 2016–2017 (TFPCH = 1.005) also experienced a decrease of only 0.5%.

Based on the results of the study it was found that the productivity level of BLUD hospitals in South Sulawesi Province was still low and showed a declining trend during the study period. This should be of concern to the government. It is expected that some improvements need to be made in terms of policies so that in the future the level of efficiency and productivity of hospitals will not continue to decline.

Table 2 Malmquist index summary of annual mean.

Year	EFFCH	TECHCH	PECH	SECH	TFPCH
2014–2015	1.020	1.053	0.981	1.040	1.074
2015–2016	0.995	1.046	1.011	0.985	1.041
2016–2017	1.018	0.988	1.007	1.010	1.005
Geometric mean	1.011	1.029	0.999	1.012	1.040

The results of the study found that there were at least two factors that led to a decline in hospital productivity, namely the INA-CBGs tariff rates are still low and the next is that there are still frequent delays in paying BPJS Health claims to hospitals. Both of these conditions have had a systemic impact on hospital productivity performance. The government needs to immediately issue a policy to improve the INA-CBGs mandated to be carried out every two years where the current tariffs were last updated in 2016 and until now no repairs have been made.

Conclusion

The annual analysis shows that the growth rate of hospital productivity tends to decrease every period, namely in the 2014–2015 period grew by 7.4% and then decreased to 4.1% in the period 2015–2016 and the 2016–2017 time period decreased productivity to 0.5%. This shows that in the current era of implementation of the National Health Insurance program, the growth of hospital productivity continues to decline from year to year.

Conflict of interest

The authors declare no conflict of interest.

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