

Indexing Social Sector Performance in Bangladesh in the Context of South and Southeast Asia

Syeda Salina Aziz
Saika Nudrat Chowdhury



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Acronyms and Abbreviations

CPI	Corruption Perceptions Index
HDI	Human Development Index
IMR	Infant Mortality Rate
MDG	Millennium Development Goals
MPCA	Modified Principal Component Analysis
OECD	Organisation for Economic Co-operation and Development
PCA	Principal Component Analysis
TI	Transparency International
UMR	Under-five Mortality Rate
UNDP	United Nations Development Programme
WDI	World Development Indicators
WGI	Worldwide Governance Indicators
WHO	World Health Organization

Abstract

This paper aims to quantify the performance of the social sector, namely health and education in Bangladesh and compare them with that of South Asia and Southeast Asian countries. Health and education indices are developed to rank the countries according to their performance. The paper briefly presents the methodological debate regarding construction of indices and compares the result obtained by the conventional 'Human Development Index (HDI)' methods with some other methods. Findings suggest that even though Bangladesh is making impressive progress in many social sectors which is reflected in the MDG targets, it is still an underperformer in health and education sectors compared to many of its neighbours. Singapore is the best performer in health whereas Maldives ranked first in education. Among the South Asian nations, and compared to many Southeast Asian countries, Maldives is way ahead in both sectors. Afghanistan is lagging behind in the health sector whereas Pakistan is laggard in education. The paper also shows that the ranking obtained by HDI is somewhat different than rankings provided by other approaches and suggest that careful consideration is needed in this respect to ensure objectivity in the analysis.

Keywords

Indicators, South Asia, Bangladesh, Health, Education.

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1. Introduction

Social sector development is crucial for economic growth and human development. Ensuring quality of health and education in a cost effective manner is a concern in many countries of the world. In this context, the term 'governance' is increasingly being used to draw attention to a number of factors that affect the quality, effectiveness and reach of social services (Savedoff 2011).

Governance is defined as the 'traditions and institutions by which authority in a country is exercised for the common good which includes the process of selecting those in authority, capacity of the government to manage, and respect for the state' (Kaufmann et al. 2003 2007). When social services are concerned, good governance is meant to ensure effective delivery of services that can contribute to better outputs and outcomes in the social sector. In this context, the use of governance indicators has increased in recent times. For instance, WHO (2008) develops a list of governance indicators for ensuring accountability in the health sector. Lewis and Patterson (2009a; 2009b) also argued that good governance can be the key in raising institutional performance in health and education and introduced indicators which can be used to track the performance of those sectors. The argument behind the emergence of governance indicators, as stated in Organisation for Economic Co-operation and Development (OECD) literature, is 'based on the maxim that you can only manage those you can measure, the decision makers seek to quantify the quality of governance' (OECD 2008).

There are a number of governance indicators which have already been developed by different institutes, some of which provide a very comprehensive view of governance like the Worldwide Governance Indicators (WGI), which includes six different dimensions of governance¹. Among others, 'Government effectiveness' is an indicator that includes the perception about the quality of service delivery in various sectors including health and education. Organisation for Economic Co-operation and Development (OECD) also evaluates the quality of public service delivery in member countries in its 'governance at a glance' study which includes comparing the service sector performance as well. Transparency International (TI) produces the Corruption Perception Index (CPI) in 177 countries of the world based on corruption data on different sectors which also includes the health and education sectors. Some of the indicators have a very specific focus such as Freedom House indicators on political engagement and civil rights. The Human Development Index (HDI) captures a very unique aspect of human development, combining information of income growth, life expectancy and educational attainment.

However, the assessment of available indicators show that governance indicators for social sector are mostly perception based indicators and do not always compare cross country performance in terms of the original data. OECD comparison of social sectors performance is an exception but the comparisons are only limited among member countries. UNDP does periodical studies in the form of 'Multiple Indicator Cluster Survey' to measure progress of social sectors in terms of measuring the situation of women and children in different countries.

1. Including voice and accountability, political stability and absence of violence, government effectiveness, regulatory quality, rule of law and control of corruption.

In this backdrop, this paper aims to construct indicators for the health and education sectors for Bangladesh and other South and Southeast Asian countries. This can provide a quick comparative picture of country performance in the above mentioned sectors throughout the region. Consequently, the paper also intends to apply different methodologies in constructing indicators to see if the ranking varies substantially based on which method is used.

This paper is organised in the following manner. Section one presents the introduction. Section two discusses methodology and data source, followed by Section three which presents the country ranking based on health and education indices. Section four presents limitations and section five concludes.

2. Data and Method

2.1 Data

For this study, data on health and education has been collected from the World Bank's World Development Indicators series. The year 2012 has been used as the reference year but in case of unavailability of data for any specific country for 2012, data from previous years have been used.

2.2 Defining Indicator

An indicator is a quantitative measure derived from a series of observed facts that can reveal relative positions (e.g. of a country) in a given area (OECD 2008). Indicators are also useful to follow the direction of changes over time, and can also reflect the implication of policy change. UNDP (2008) states that governance indicator can be defined either in terms of input, or in terms of output or process. Input indicators are *de jure* indicators which usually cover commitments made by countries in form of constitutions, national policies or international treaties. Process indicators are *de facto* indicators which reflect the action of the actors, functioning of the involved institutions to fulfil their responsibilities and commitments. Output or outcome indicators are also *de facto* indicators which reflect the end result or benefit enjoyed by people. Stecher (2005) argues that among these three types, process based indicators can provide a better picture of governance. Input based indicators can only reflect the basic standard of service but it do not go beyond it whereas output based indicators limit themselves in assessing the quality but do not provide any direction for improvement. Having said that, we use a mix of both input and output variables to construct indicators for health and education as there is no consistent data on process variables available for the countries considered in this paper.

2.3 Steps in constructing index

The idea behind the governance indicator is to construct a set of indicators which would assess the performance of different sectors. As discussed before, the indicators are constructed based on a set of indices where the indices themselves are the weighted sum of several variables. It is a two-stage process where the first stage is to construct composite indices, and then to combine them to construct the indicators. An index can be expressed mathematically as:

$$I_i = \sum W_j X_{ij} ; i = 1, \dots, n ; W = \text{Weight}, X = \text{Variable}$$

The construction of an index is done in two steps; firstly, the scale biases should be removed from the variables and secondly, appropriate weights have to be assigned to each variable.

i. Standardising variables

Generally, a composite index is constructed based on the different variables which are usually measured in different units and are not additive in nature. To omit the bias in their measurement, it is necessary to standardise them to a uniform unit. There are different methodologies for eliminating the scale bias; for our indicators the methodology adopted by the UNDP in computing the Human Development Indicator (HDI) is used. The formula for standardisation of variable is:

$$StdX_i = \frac{X_i - Min(X_i)}{Max(X_i) - Min(X_i)}$$

That is, the standardised value would be obtained by dividing the difference between each observation and the minimum value by the range of the observations. It is also important to identify if variable values/indicators are unidirectional or not. For reverse indicators the value should be subtracted from one to make it unidirectional. This will give a new range of values with a score starting from zero to one.

The literature suggests that there are some methodological debates on which standardisation scale to use in constructing indices. Some (Kundu et al. 2002; Chowdhury 2005; OECD 2008) suggest that when standardisation is done based on range which is used in HDI, i.e. depending on two extreme values of a series, it might bring instability in the methodology. There are few alternatives which are given priority in the literature such as use of 'division by mean', 'Z-standardisation' or 'division by standard deviation' approach.² Chowdhury (2005) applied a comparative study of methods in a paper and showed that using 'division by mean' approach actually ensures more objectivity compared to the traditional HDI method.

To compare if the index score differs significantly based on which methodology is used for standardisation, this paper uses the 'division by mean' method of standardisation aside from the HDI based standardisation. In this, each observation is divided by their respective mean to omit the bias of scale. According to that, the formula stands as follows

$$StdX_i = \frac{X_i}{Avg(X_i)}$$

Again, for variables in reverse order, the reverse value of the standardised X_i was considered. The weights are then assigned based on the standardised score using the principal component analysis.

ii. Assigning weight

Assigning weight is a crucial issue for constructing the index. Usually equal weights are given to the same variables to construct an index which is used in HDI. As argued, giving equal weights implies that all variables have equal worth in the composite which might not

2. For detail discussion on standardisation, please see Kundu, A., Shariff, A., and Ghosh, P. K., 2002, Indexing Human Development in India: Indicators, scaling and composition. National Council of Applied Economic Research (NCAER), Working paper series no 83.

always be the case in reality. It may also result in double counting if two collinear indicators are included in the composite index with equal weight (OECD 2011).

Alternatively, Principal Component Analysis (PCA) is accepted as the unbiased way to assign weights to variables in constructing a composite index. PCA is actually a dimension reduction tool which is used to reduce a large set of possibly correlated variables to smaller sets of linearly uncorrelated variables. Principal components are estimated from the Eigen vectors of the covariance or correlation matrix of the variables which are used in the analysis. It is useful when there remains a high degree of correlation among the variables.

PCA determines weight of different variables such that the sum of square of correlation between the index and the variables is maximised.

In this paper, indices are constructed using different standardisation and different weighing methods. A combination of three different methods has been used to produce the country rankings which are summarised as follows:

1. HDI Method: This uses the standard UNDP's HDI methods of max-min standardisation and assigns equal weights to all considered variables.
2. PCA Method: The HDI based max-min standardisation is used but instead of using equal weights, the standard principal component method was used.
3. MPCA (modified PCA) Method: This uses 'division by mean' standardisation and weights are assigned by using PCA.

The basic difference between PCA and MPCA as discussed by Chowdhury (2005) is that when PCA gives higher weight to indicators having higher correlations with other indicators, in the MPCA method, the disparities in distribution also plays a role. With MPCA, the indicator with higher variability gets higher weight.

3. Indicators

3.1 Health Index

The Health index is constructed to get an aggregate view of health sector performance of different South and Southeast Asian countries including Bangladesh. The variables have been carefully chosen so that the index represents the maximum possible dimension of health governance. The following broad areas have been identified under which the variables have been selected:

1. Health status
2. Health risk
3. Quality of health care
4. Resource allocations

Figure 1: Country ranking on health (Index based on HDI method)

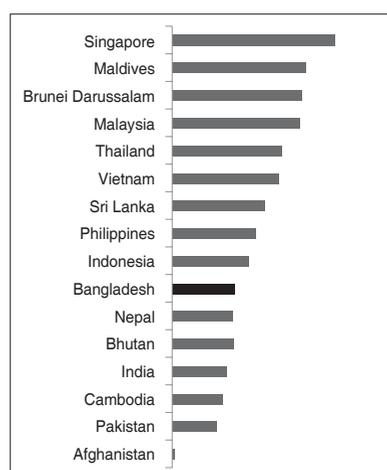


Figure 1 represents the index value of health sector for Bangladesh as well as other South and Southeast Asian countries. The figure represents that Bangladesh gets a rank of 10 among the 15 countries with a score of 0.39 as a weighted average of the eight variables chosen to construct the health index. Singapore with a score of 1 obtains the first rank whereas Afghanistan obtains the lowest rank with a score of 0.01.

Source: Authors' compilation based on WDI data.

Infant mortality rate, under-five mortality rate, prevalence of undernourishment and life expectancy at birth were selected to represent the health status.³ To measure the health risk, access to safe drinking water and access to improved sanitation have been picked as key variables. Number of doctors per 10,000 people is the variable to capture the quality of the service. Finally, public expenditure on health as a percentage of GDP is chosen to capture the expenditure pattern where the percentage of resources that flowed to this specific sector might capture the magnitude of attention provided to that particular sector⁴. Here, the attempt is to look at the health sector both considering the input and the end results. Management of the health sector is excluded due to unavailability of data.

Table 1: Health Index: Scores and country ranking of South and Southeast Asian Countries

	HDI		PCA		MPCA	
1	Singapore	1.00	Singapore	1.65	Singapore	8.54
2	Maldives	0.82	Malaysia	1.35	Brunei Darussalam	4.05
3	Brunei Darussalam	0.80	Vietnam	1.17	Malaysia	3.96
4	Malaysia	0.78	Maldives	1.17	Maldives	3.20
5	Thailand	0.68	Thailand	1.12	Thailand	2.76
6	Vietnam	0.66	Sri Lanka	1.10	Sri Lanka	2.72
7	Sri Lanka	0.57	Brunei Darussalam	0.98	Vietnam	2.34
8	Philippines	0.51	Philippines	0.79	Indonesia	1.65
9	Indonesia	0.47	Indonesia	0.78	Philippines	1.45
10	Bangladesh	0.39	Bangladesh	0.69	India	1.31
11	Nepal	0.38	Bhutan	0.68	Bangladesh	1.30
12	Bhutan	0.38	India	0.66	Pakistan	1.30
13	India	0.33	Nepal	0.61	Cambodia	1.22
14	Cambodia	0.31	Pakistan	0.55	Nepal	1.12
15	Pakistan	0.27	Cambodia	0.53	Bhutan	0.96
16	Afghanistan	0.01	Afghanistan	0.03	Afghanistan	0.68

Source: Authors' compilation based on WDI data.

3. IMR, UMR, life expectancy are core indicators of health status. HDI uses life expectancy as a core variable; IMR and UMR as well as people's access to safe drinking water and sanitation are used as MDG indicators. Other studies also use them as standard indicators to reflect health status. (India Today 2008; Kundu et al. 2002)
4. We are assuming more is better in this context as health expenditure in South Asian countries are reasonably low, public sources account for only 25 per cent of health expenditure and the rest is out-of-pocket expenditure. The scenario is also similar to low income Southeast Asian countries. For more details see Gottret and Schieber (2006).

Table 1 presents the scores and relative ranking of Bangladesh as well as other South and Southeast Asian countries in the health sector. In the three columns, results from HDI, PCA and MPCA are presented where higher scores imply better ranking and better performance.

The table reveals that Bangladesh is laggard in the performance in the health sector when the abovementioned variables are considered in comparison to the South and Southeast Asian countries. The ranking of Bangladesh does not vary much, irrespective of the methodology. It belongs to the 3rd quartile amongst the countries in all three ranks, although individual ranking slightly falls when MPCA is used. However, when the rankings of only South Asian countries are considered, it is visible that Bangladesh is a better achiever in the health sector than many of its neighbouring countries. The difference between scores assigned by different methods is also noteworthy; while the HDI ranking gives a very close range of scores for Bangladesh, India, Nepal and Bhutan, MPCA scores differ considerably. When MPCA scores are considered, Nepal and Bhutan are much behind in performing in the health sector compared to Bangladesh and India. The similar country scores of Bangladesh and India suggest that there is little variation in the performance of the health sector of Bangladesh and India considering the index value. Maldives and Sri Lanka are the top performers in the South Asian region irrespective of the method. Ranking of Pakistan goes up in MPCA while HDI and PCA provides relatively lower ranking.

The results show that in all considered rankings provided by HDI, PCA and MPCA, Singapore remains the best performer in health sector amongst the South Asian and Southeast Asian countries, whereas Afghanistan remains the worst. Malaysia and Maldives consistently remain in the top in all three rankings with minor exceptions. The table shows that the relative position of Thailand remains unchanged irrespective of the methodology. Nevertheless, Brunei shows much improvement in the ranking when MPCA is used. It is also evident that Maldives is the only South Asian country which consistently belongs to the top quartile.

Ranking alone is not enough to get the idea about comparative positions of the countries. Scoring associated with ranks can provide more insight about the magnitude of difference between countries. As seen in terms of scores calculated by HDI and PCA, the differences between Singapore and the second ranked country are not very high (1 and .82/ 1.65 and 1.35) whereas according to the score calculated by MPCA, the magnitude of difference is almost double.

In general, Cambodia is the laggard performer in the health sector among the Southeast Asian countries, and Afghanistan, Nepal and Bhutan are clearly lagging behind in the South Asia Region. Bangladesh, India and Pakistan are performing moderately whereas Sri Lanka is in a much better position.

3.2 Education Index

To construct the index of the education sector, the following dimensions have been considered:

1. Status of education
2. Access to education
3. Quality of education
4. Resource allocation
5. Equity in education

Figure 2: Country ranking on education (Index based on HDI method)

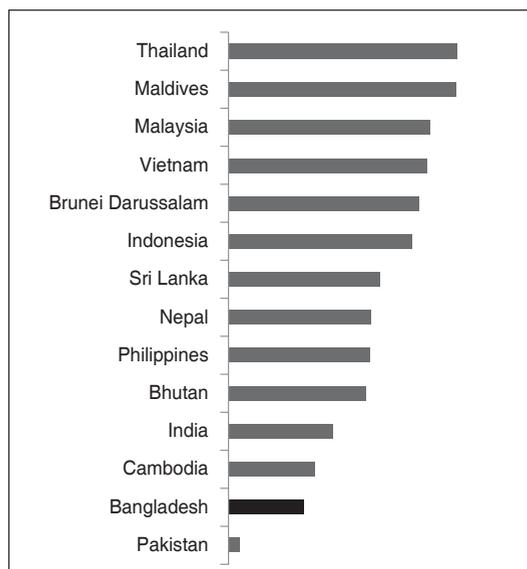


Figure 2 represents the index value of education for Bangladesh as well as 13 other South and Southeast Asian countries. It can be seen from the figure that Bangladesh obtains a score of 0.428 as a weighted average of the six variables chosen to construct the education index which gives it a relative ranking of 13 out of 14. Maldives with a score of .715 obtains the highest rank whereas Pakistan obtains the lowest rank with a score of 0.198.

Source: Authors' compilation based on WDI data.

The education index consists of several variables to cover each of the aspects similar to the health index. However, it has an additional variable on equity which the health index did not have. Adult literacy rate⁵ is the most important variable to reflect the status of the education in a country. Along with this, net enrolment in primary schools shows access to education. Pupil-teacher ratio and primary completion rate have been used to capture the quality of education. Ratio of girls to boys in education covers the equity dimension whereas public expenditure as a percentage of GDP gives the idea about the resource allocation.

Table 2: Education Index: Scores and country ranking of South and Southeast Asian Countries

	HDI		PCA		MPCA	
1	Thailand	0.88	Maldives	1.53	Maldives	2.38
2	Maldives	0.88	Malaysia	1.43	Brunei Darussalam	2.28
3	Malaysia	0.79	Brunei Darussalam	1.34	Malaysia	2.28
4	Vietnam	0.77	Thailand	1.31	Thailand	1.96
5	Brunei Darussalam	0.74	Indonesia	1.31	Indonesia	1.96
6	Indonesia	0.71	Nepal	1.19	Nepal	1.79
7	Sri Lanka	0.58	Bhutan	1.05	Bhutan	1.78
8	Nepal	0.55	Sri Lanka	1.05	Sri Lanka	1.77
9	Philippines	0.55	Vietnam	0.93	Philippines	1.70
10	Bhutan	0.53	India	0.91	India	1.62
11	India	0.41	Cambodia	0.85	Cambodia	1.57
12	Cambodia	0.34	Bangladesh	0.81	Bangladesh	1.52
13	Bangladesh	0.29	Philippines	0.39	Vietnam	1.35
14	Pakistan	0.05	Pakistan	0.06	Pakistan	1.29

Source: Authors' compilation based on WDI data.

5. Literacy rate of 15-24 year-olds, Net enrolment ratio in primary education and ratios of girls to boys in primary education are all included in MDG targets under goal2. World Bank suggests Primary completion rate is the better indicator when countries have repetition rate and late start in schools.

Table 2 presents the scores and relative ranking of Bangladesh as well as other South and Southeast Asian countries in the education sector. In the three columns, results from HDI, PCA and MPCA are presented, where higher scores imply better performance. Afghanistan and Singapore are excluded from the ranking due to unavailability of data.

When it comes to Bangladesh, we see that it is among the laggard performers in the education sector considering the aforementioned aspects. In all three rankings, it lies in the bottom quartile, though PCA and MPCA scores provide slightly better ranking than HDI. It is also visible from the scores assigned in each of the three indices that the difference in performance of Bangladesh and other better ranked countries such as Cambodia and India are not very high, which implies that these countries belong to similar positions in education in our ranking. In contrast, the difference between the worst performing country and Bangladesh is significantly high implying that Pakistan, in all considered aspects, lies further behind than its neighbouring countries.

It is also evident that Bangladesh is underperforming in the education sector compared to its performance in the health sector when only South Asian countries are considered. Excepting the fact that Maldives is an over achiever in the education sector, the ranking suggests that performance of Sri Lanka, Nepal and Bhutan are considerably better than Bangladesh.

Among all the countries, Maldives stands out as the best performing country in PCA and MPCA and ranks second in the HDI based calculation (even though the difference is minimal with the top performer). Malaysia, Brunei and Thailand also remain in the top quartile irrespective of methods used, but the relative positions vary minimally based on which methodology is used. The ranking of Vietnam varies significantly based on which method is used. According to HDI scores, Vietnam is ranked among the top performers whereas with PCA, it is ranked much lower, and again according to MPCA, Vietnam is ranked as one of the worst performers. Irrespective of the methodology, Pakistan ranked as the worst performer in view of the aspects considered in this ranking.

4. Limitations

A number of variables have been chosen to reflect on the status of the sectors, access of the people, quality of service delivery and government attention to those sectors. The variables included in this study are core variables which are widely used for evaluating sector performances internationally. For instance, variables used in health sector such as IMR, UMR, access to drinking water and sanitation are MDG indicators while life expectancy is used in HDI. Most of the variables used in the education sector are also used as MDG performance variables.

Nonetheless, one caveat is that the effort made in this study is not comprehensive enough to provide a holistic view about social sector performance. A wide range of variables are left out of the discussion due to unavailability of consistent data for the aforementioned countries. Subsequently, if the availability of information improves, a number of criteria could be added to make the indices more robust. This of course needs careful attention to ensure selection of the most important variables so as not to include irrelevant ones in making the indices.

Another caveat of this study is that for some variables, data from different years had to be used. This affects the consistency a little. Also two countries had to be excluded from the education index due to unavailability of data. This certainly points to the need for collecting and collating regional information in a more serious and organised manner.

5. Conclusion

The findings of the paper suggest that even though Bangladesh is making impressive progress in many social sectors which is reflected in the MDG targets, it is still lagging behind compared to its neighbours. The relative performance is better in health compared to education. It can also be noted that Singapore is the best performer in health whereas Maldives scores better in education.

It was also found that Maldives outweighs most of its South Asian neighbours in social sector performance. Afghanistan is lagging behind in health sector whereas Pakistan is laggard in education.

Regarding the methodology, the use of HDI might be misleading as it gives ratings and scores somewhat different than the ratings and scores obtained by MPCA and PCA. It was seen that when health sector performance is considered for Bangladesh and other South Asian countries, HDI shows that there is a little variation in performance of Bangladesh and India with that of Bhutan and Nepal, whereas MPCA shows that there is a huge variation in performance. In the education rankings, Vietnam gets a high rank in HDI but in PCA and MPCA, it ranks as a laggard. This shows that assigning weight needs more objectivity when country comparisons are made.

It can be concluded that the indices can provide a quick rating of the performance of the crucial sectors of the country, and it may leave an important message for the policy makers that, even though we are claiming that the key sectors are doing relatively well, comparative assessment might provide a better understanding of the situation. This in turn can be helpful in the designing of new interventions in sectors. This entire exercise can be very helpful if performed for the sub-national level. These can be very useful in domestic policy making as well.

References

- Chowdhury, S., 2005. The Human Development Index: An Exercise in Objectivity [Online]. Available from: core.ecu.edu/psyc/wuenschk/MV/FA/PCA-SPSS.doc. [Accessed: 10 February 2012].
- Gottret, P. E., and Schieber, G., 2006. Health financing revisited: a practitioner's guide. World Bank Publications.
- India Today, 2009. State of the States, the Definitive Ranking of the Quality of Life across India. India Today, September.
- Kaufmann, D., Kraay, A. C. and Mastruzzi, M., 2003. Governance Matters III: Governance Indicators for 1996-2002. World Bank Policy Research Working Paper 3106. Washington DC: World Bank.
- Kaufmann, D., Kraay, A. C. and Mastruzzi, M., 2007. Governance Matters VI: Aggregate and Individual Governance Indicators 1996-2006. World Bank Policy Research Working Paper 4280, Washington DC: World Bank.
- Kundu, A., Shariff, A. and Ghosh, P.K., 2002. Indexing Human Development in India: Indicators, Scaling and Composition. National Council of Applied Economic Research (NCAER), Working paper series no 83.
- Lewis, M. and Pettersson, G., 2009. Governance in Health Care Delivery: Raising Performance. Draft, Washington, DC: World Bank. Mimeo. June 4.
- Lewis, M., and Pettersson, G., 2009. Governance in Education: Raising Performance. World Bank Human Development Network Working Paper.
- WHO, 2008. Toolkit on monitoring health systems strengthening: Health Systems Governance. Geneva: World Health Organization.
- OECD, 2008. Handbook on Constructing Composite Indicators: Methodology and User Guide. OECD Publishing.
- Stecher, M. B., 2005. Developing Process Indicators to Improve Educational Governance: Lessons for Education from Health Care. RAND Corporation.
- UNDP, 2008. What makes a "good" governance indicator, GAP (Governance Assessment Portal). UNDP.
- Savedoff, W. D., 2011. Governance in the Health Sector: A Strategy for Measuring Determinants and Performance. Human Development Network Office of the Chief Economist, World Bank. WPS5655.



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