

Millennium Development Goals: Analysing Implementation with the New Understandable Time Distance Method

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Abstract. The new generic time distance methodology offers a new view of the implementation of the MDGs that is exceptionally easy to understand and to communicate. S-time-distance calculates the time lead or time lag of actual values from the lines to 2015 MDGs targets – everybody understands time comparisons of actual arrivals with the train (airplane, bus) timetable.

Results are presented at three levels: for 8 world regions, for all countries in sub-Saharan Africa, and for DAC members on Official Development Aid. Analysing 10 selected indicators for Developing Regions only two were ahead, for 8 indicators the time delays behind the lines to the 2015 targets were between 4.6 years and nearly 13 years. The largest delays were for maternal mortality ratio and prevalence of underweight children under-five years of age; by regions in sub-Saharan Africa, Western Asia and Southern Asia. These recorded substantial delays in the implementation of MDGs should not overshadow the fact that progress has been made in all selected indicators and in all world regions, though in very different degrees.

By seeing with new eyes of the time distance perspective new perceptions of the situation with broader conclusions can be reached and new development stories analysed from existing MDG data at the world, country and local levels. SICENTER developed a free web tool to facilitate this for interested users. The time distance monitoring methodology can be usefully applied also in operational monitoring of implementation of plans, budgets, forecasts, projects, etc. at macro and micro levels.

Key words – millennium development goals, monitoring, S-time-distance, world regions, Africa, foreign aid

1. INTRODUCTION

Monitoring implementation of targets is an indispensable part of the policy cycle¹. A substantial effort by the international and national organisations has been and will be channelled into collecting the necessary data for the related system of indicators; time distance concept can be helpful for a better utilisation of data for policy debate. Namely, the perceptions and the resulting decisions are influenced not only by available statistical data but also by the measures that are used in the measurement, analysis, presentation and semantics of discussing these issues. Better decision making and wide participation will depend critically on the human interface: understanding of the information and communication of that understanding.

This article demonstrates the analytical and presentation capabilities of the novel time distance methodology that can be used as one of the measures of the implementation of MDGs across a number of relevant indicators by numerous users. The comparison across many indicators from different fields of concern is a very important topic of interest of

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international organisations and aid donors at the world and regional levels as well as in the national and sub-national analysis and reports of implementation of the MDGs.

The new generic time distance methodology offers a new view of data that is exceptionally easy to understand and communicate. Statistical measure S-time-distance measures the distance (proximity) in time between the points in time when the two series compared reach a specified level of the indicator X. Expressed in time units (years, months, etc.) the interpretation for monitoring with S-time-distance measure is straightforward and intuitively understandable to everyone. For given level of actual values it deals with the deviation (lead or lag in time) between the time when such actual value was attained and the time when that level was supposed to be reached on the line to the respective 2015 MDGs target. It is like tracking the actual arrivals in comparison with the train or bus timetable (the difference being that the geographical space is here replaced with the indicator space). Thus it represents an excellent presentation and communication tool that is intuitively understood by policy makers, experts, managers, media and the general public.

It is complementing rather than replacing existing statistical measures for monitoring implementation of targets (or plans, budgets, forecasts, goodness-of-fit in regressions and models). In the empirical part of the article the time lead or time lag in implementing MDGs targets for selected indicators is evaluated for the aggregate of developing regions, for seven world regions and for eight indicators for Sub-Saharan countries. Another section is devoted to the analysis of delays in the Official Development Aid. Conclusions summarize the pertinent methodological and substantive points.

2. TIME DISTANCE MONITORING METHODOLOGY

At the theoretical level the present state-of-the-art does not realise that, in addition to static comparison, there exists in principle a theoretically equally universal measure of difference (distance) in time when a given level of the variable is attained by the two compared time series. Time distance in general means the difference in time when two events occurred and as such is used in many fields, like history or spatial analysis. However, S-time-distance is a special category of time distance, which is defined for the level of the analyzed indicator: it measures the distance (proximity) in time between the points in time when the two series compared reach a specified level of the indicator X. The generic concept of S-time-distance has a wide area of application (see e.g. Sicherl 1994, 2004, 2007a, 2009a).

S-time-distance concept enables additional exploitation of data and visualization for time related databases and indicator systems. A new set of information with clear interpretability, hidden in the available data, is now provided due to an added dimension of measurement and analysis. The results and conclusions based on the two-dimensional analysis, static measures and time distance, attach a new dimension and new insight, while none of the earlier results are lost or replaced.

In graphical terms, the usual way is to compare the time series in the vertical dimension, i.e. for a given point in time. The S-time-distance approach uses an additional perspective; it compares the respective time series in the horizontal dimension, i.e. for a given level of the variable. The observed distance in time (the number of years, quarters, months, etc.) is used as a temporal measure of disparity between the two series in the same way that the observed difference (absolute or relative) at a given point in time is used as a static measure of disparity².

Monitoring implementation of the MDGs with time distance method is simple and intuitively understandable. We compare two series, actual values and the expected values on the line to target. The series of actual values for the analyzed indicator defines the relevant levels of comparison. The S-time-distance is the difference between the series of times when actual levels were achieved and the series of the hypothetical calculated times on the line to the 2015 MDGs target when these actual values were assumed to be reached. The results also depends on the assumption whether linear or exponential line to target is selected.

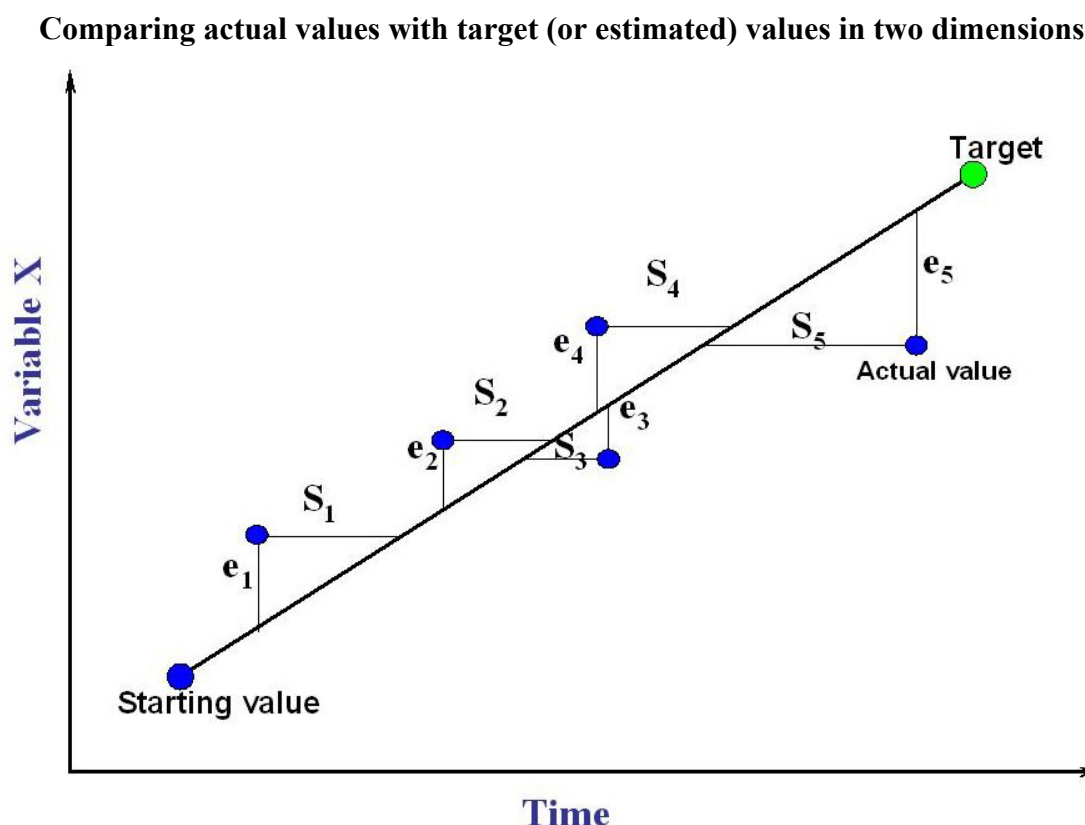


Figure 1. Monitoring: S-time-distance deviations from the line to target

Figure 1 explains the calculation of the two dimensions of deviations from the assumed line to target. The values of e_i are static measures of deviation (absolute or relative differences) at a given point in time and S_i are S-time-distances indicating time lead or time lag of actual values against assumed lines to target³. For instance, the actual value of under-five mortality rate for the aggregate of developing regions was 72 in 2008 according to UNSD. On the linear line of decrease to the 2015 target of under-five mortality rate of 33.3 it is estimated that the value of 72 was expected to be achieved already in 2000.5, which means that the time delay is 7.5 years (2008 – 2000.5).

Figure 2 presents this empirical example of monitoring the implementation of MDGs target for under-five mortality rate for the aggregate of developing countries in the two dimensions. Again, the actual value of the indicator for 2008 (or any other year) is compared to the desired decreasing line to target and the deviations in the two directions are calculated. The results will depend not only on the actual values but also on the selection of the line to the targets. The two simplest variants are linear or exponential line to target. In this article we shall use the linear line for the indicators with desired decreasing tendency (like Figure 2) and

exponential line to target for indicators with desired increasing tendency (like school enrolment).

We can observe that deviations from the line to target are increasing over time both for S-time-distance and for static measures of deviation. Over the 18 years of the analyzed period by 2008 the time delay increased to 7.5 years. Expressed in standardized time units S-time-distance measure is intuitively understandable by everybody: it is the same concept as comparing actual arrivals with the train (airplane, bus) timetable. The characteristics that it is expressed in time units means that it is comparable across variables, fields of concern and units of comparison, which makes S-time-distance an excellent complementary analytical and presentation tool for policy debate.

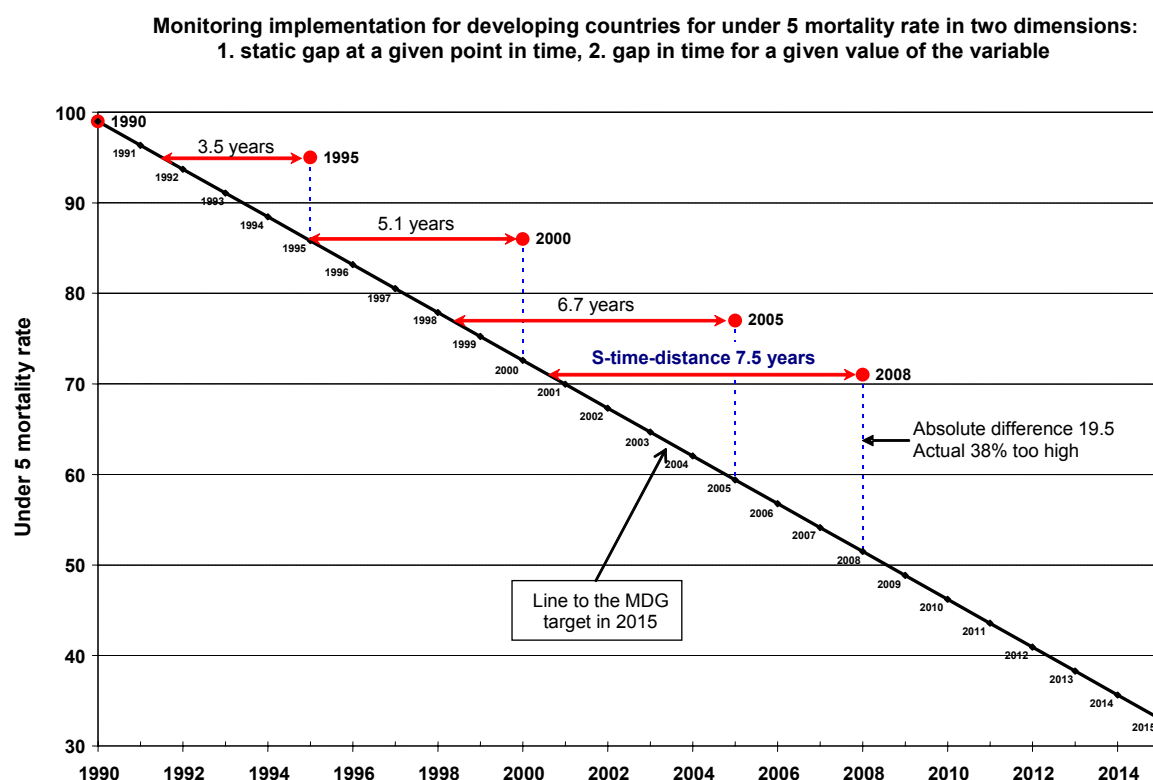


Figure 2. Example of monitoring in two dimensions

SICENTER developed a free web tool which allows a variety of interested users such as international and national organizations, NGOs, experts, managers, educators, students and media to monitor with S-time-distance the lead or lag in time for the UN Millennium Development Goals, the Lisbon and NRP targets in the case of EU and or other planned, budget, or aid disbursement targets at world, regional, national, sub-national and business levels⁴. The tool is available at http://www.gaptimer.eu/s-t-d_monitoring_tool.html

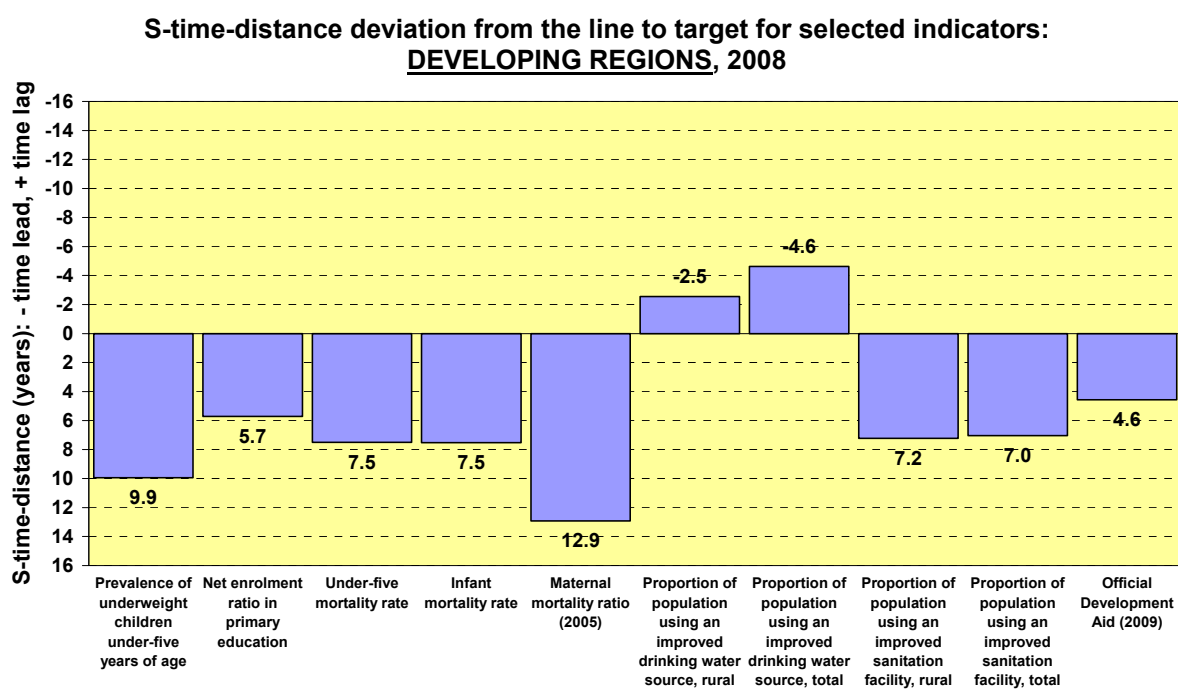
At the 3rd OECD World Forum in Busan President of the Republic of Slovenia Dr. Danilo Türk in his key-note address underlined the importance of time distance analysis. In the third part of his address he made remarks on the question of implementation of the Millennium Development Goals. In this context he elaborated on the application of the time distance methodology for benchmarking disparities in the world using the example from the recent report of the International Telecommunication Union and the policy relevance of monitoring MDGs with the generally understandable time distance measure (OECD, 2009).

“New techniques of measuring progress can help. Let me take the example of time distance needed to achieve development objectives. How much do the policy makers and the general public need to know about the differences in time distance to achievement of various MDGs?”

“Examples I referred to show that social progress and economic development require, among other things, innovation and sophistication in the way we measure them. ... And it is necessary to make the timelines of the Millennium Development Goals fully understood. Only then will the policy making be adequate”.

3. IMPLEMENTATION OF SELECTED MDGs FOR DEVELOPING REGIONS

The MDG Progress Chart (United Nations 2010b) is very useful to give a quick assessment of the complex issue of levels, trends and progress made over a set of indicators as it can deal also with qualitative judgments. However, one can go beyond that for indicators with quantitative targets to get from the same data broader conclusions. Namely, the MDG Progress Chart can be complemented with time distance measure of monitoring the progress of implementation⁵ for those indicators for which numerical estimates are available in order to provide some additional information or background facts for such judgments.



Source: Author's calculations based on data from United Nations (2010a)

Figure 3. *Time distance view of the implementation of the Millennium Development Goals for Developing Regions*

Figure 3 provides a quick visualisation of the time distance perspective in numerical terms across 10 selected indicators using indicator values from the statistical annex of the MDG Report 2010 (United Nations 2010a) launched in June 2010. It is understood that both the Report and the results in this article are affected by problems of accuracy and gaps in national data as well as by problems of reconciling national and international data (ibid.). With this

caveat we can still say that the time distance view of the deviation of the actual developments from the respective line(s) to the 2015 MDGs targets provides a rapid transparent overview of the situation for the aggregate of developing regions over 10 indicators from six areas of MDGs.

The results in Figure 3 and Table 1 show that the degree of implementation of MDGs is far from satisfactory. Of the selected 10 indicators for the aggregate of Developing Regions only for two indicators (proportion of population using an improved drinking water source, total and rural) the implementation of the MDGs targets are ahead of the line to target, in these cases 2.5 and 4.6 years ahead. For the other eight indicators the time distance delays behind the lines to the respective MDGs targets are substantial, they vary between 4.6 years for Official Development Aid (ODA) and 12.9 years for maternity mortality rate.

Comparisons across fields of concern in Figure 3 and in Table 1 show that the most pressing issues in implementing MDGs are maternal mortality ratio and prevalence of underweight children under-five years of age. The time distance delay for maternal mortality ratio of nearly 13 years for the aggregate is especially pronounced in sub-Saharan Africa, Western Asia and Southern Asia; only the Eastern Asia is just about on the line to target.

The delay for the prevalence of underweight children under-five years of age is nearly 10 years for the aggregate, with even higher delays for sub-Saharan Africa, Western Asia and Southern Asia. China is an outstanding performer; it already reached their 2015 MDGs targets for prevalence of underweight children under-five years of age, for population under 1\$ PPP per day and for the two indicators on proportion of population using an improved drinking water source.

The other five indicators in Figure 3 and Table 1 show the range of time distance delays for the aggregate of developing regions between 5.7 and 7.5 years. There are differences among regions; sub-Saharan Africa stands out with much higher delays. The situation in sub-Saharan Africa is examined in more detail in Section 4. Figure 3 shows also that the time distance for ODA behind the line to the UN assumed target of 0.7 percent of GNI in 2015 is 4.6 years, which will be discussed in Section 5.

These conclusions have to be explained by making a clear distinction between the progress made in the world in the analyzed period and the considerable delays in the implementation of the MDGs. On the one hand, time distances for seven world regions in Table 1 imply⁶ that for all of the nine indicators in these regions the current values are better than the starting 1990 values. Thus progress has been made in all selected indicators and in all world regions but it has been quite uneven across regions as well as across countries within the regions. On the other hand, the deviations from the line to the MDG targets depend not only on the performance of the countries and international institutions but also on how well the goals and targets were established in the search of balance between desirability and feasibility.

Figures 3a – 3g show the visualisation of the results from Table 1 for the selected world regions. These figures and the estimates given in the table are inputs for a more comprehensive analysis of the situation across indicators for a given region. There is no space to undertake such analysis here. The results presented show the capability of the time distance method to provide understandable overview for world regions in this case, which can be extended to many countries, regions within countries and socio-economic groups (e.g. gender disparities).

Table 1. *S-time-distance deviation from the lines to the MDGs targets in years (- time ahead, + time behind the line to target)*

	Developing Regions	Northern Africa	Sub- Saharan Africa	Latin America and the Caribbean	Eastern Asia	Southern Asia	South- Eastern Asia	Western Asia
Prevalence of underweight children under-five years of age	9.9	-0.2	11.6	-4.7	TA	13.1	1.8	18.0
Net enrolment ratio in primary education	5.7	-0.7	3.3	1.2	N/A	2.2	N/A	8.6
Under-five mortality rate	7.5	-5.9	9.9	-2.9	-2.0	3.4	0.0	-1.3
Infant mortality rate	7.5	-4.1	10.4	-2.5	-0.8	4.6	2.3	-0.8
Maternal mortality ratio	12.9	3.0	14.3	5.7	-0.8	8.0	3.9	9.7
Proportion of population using an improved drinking water source, rural	-2.5	-2.7	7.5	-5.2	TA	-4.8	-6.4	4.1
Proportion of population using an improved drinking water source, total	-4.6	-3.6	5.9	TA	TA	-6.1	TA	3.5
Proportion of population using an improved sanitation facility, rural	7.2	TA	14.9	3.1	4.7	6.2	-2.1	2.0
Proportion of population using an improved sanitation facility, total	7.0	TA	14.9	-0.3	5.0	8.1	-4.0	5.1

Source: Author's calculations based on data from United Nations (2010a)

TA - Target for 2015 already achieved

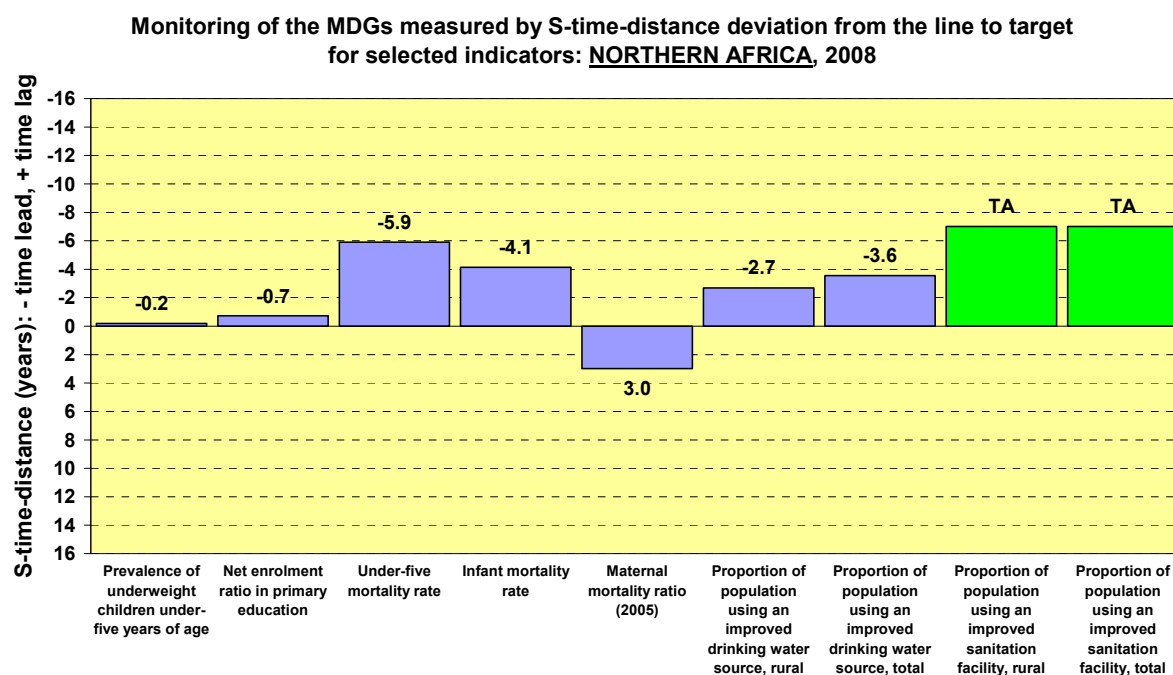


Figure 3a. Time distance view of the implementation of the MDG for Northern Africa

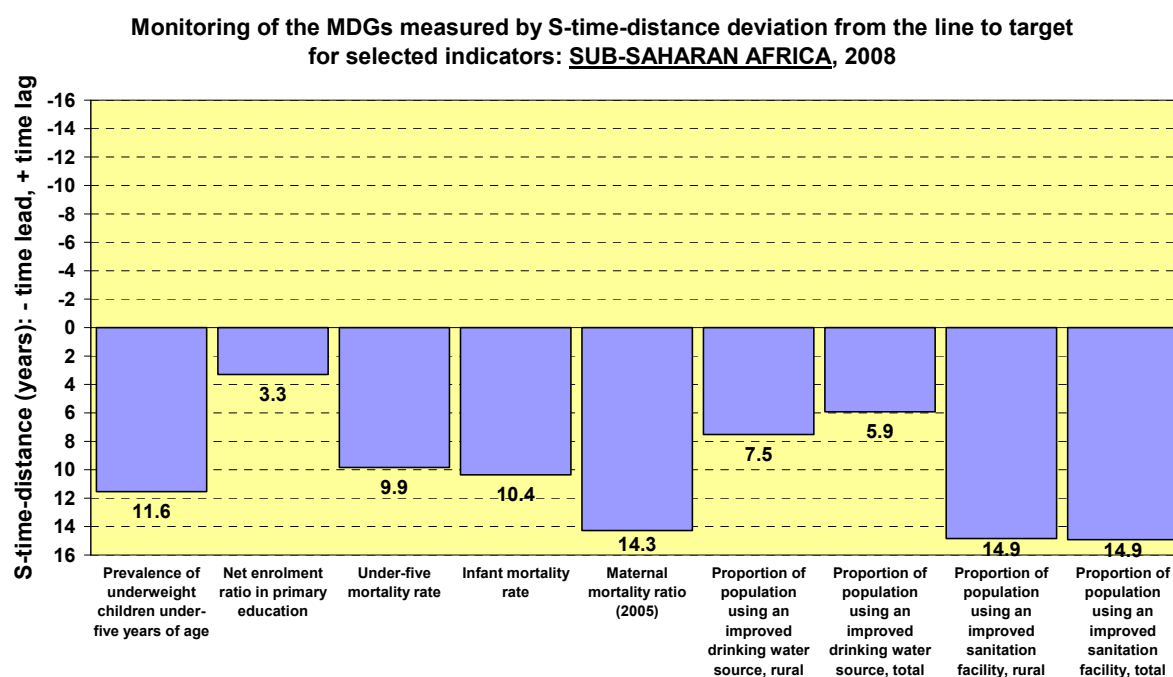


Figure 3b. Time distance view of the implementation of the MDG for Sub-Saharan Africa

Table 1 allows for immediate comparison of world regions for each of the selected indicators by comparing the results in the table horizontally. We have not done this in the paper as we assumed that comparisons across indicators for a given unit are of more interest. Anybody can analyse and graph these comparisons if interested. From the methodological point of view this indicates very rich possibilities of analysis across unit and indicators.

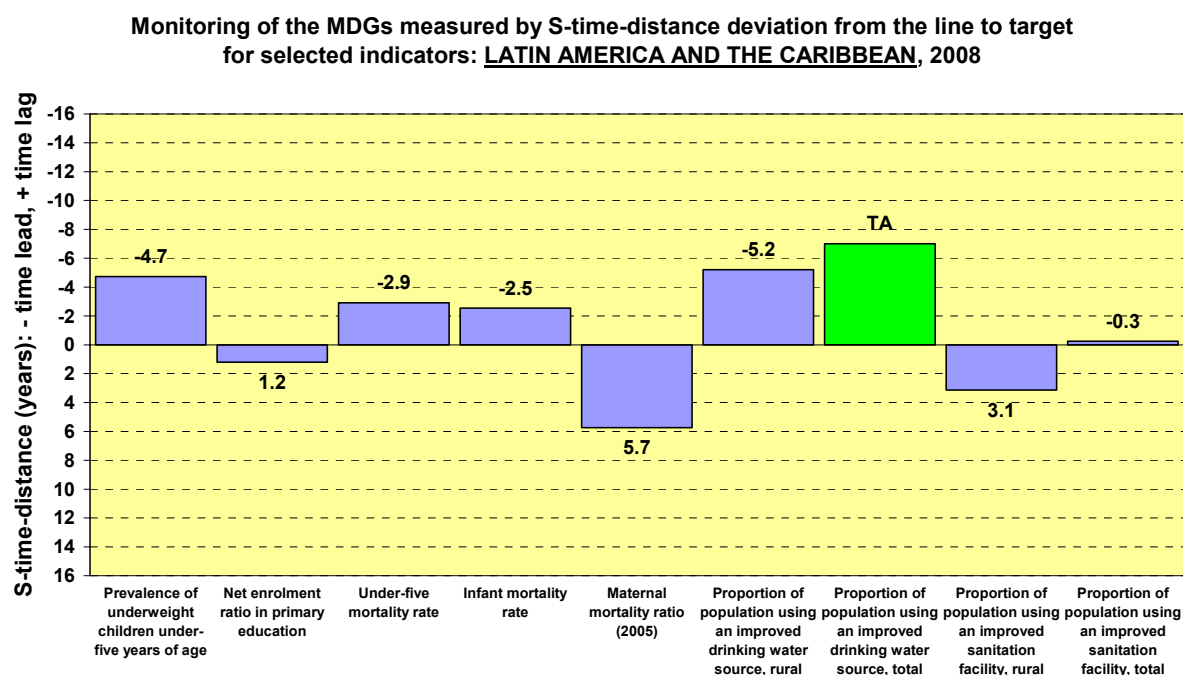


Figure 3c. Time distance view of the implementation of the MDG for Latin America and the Caribbean

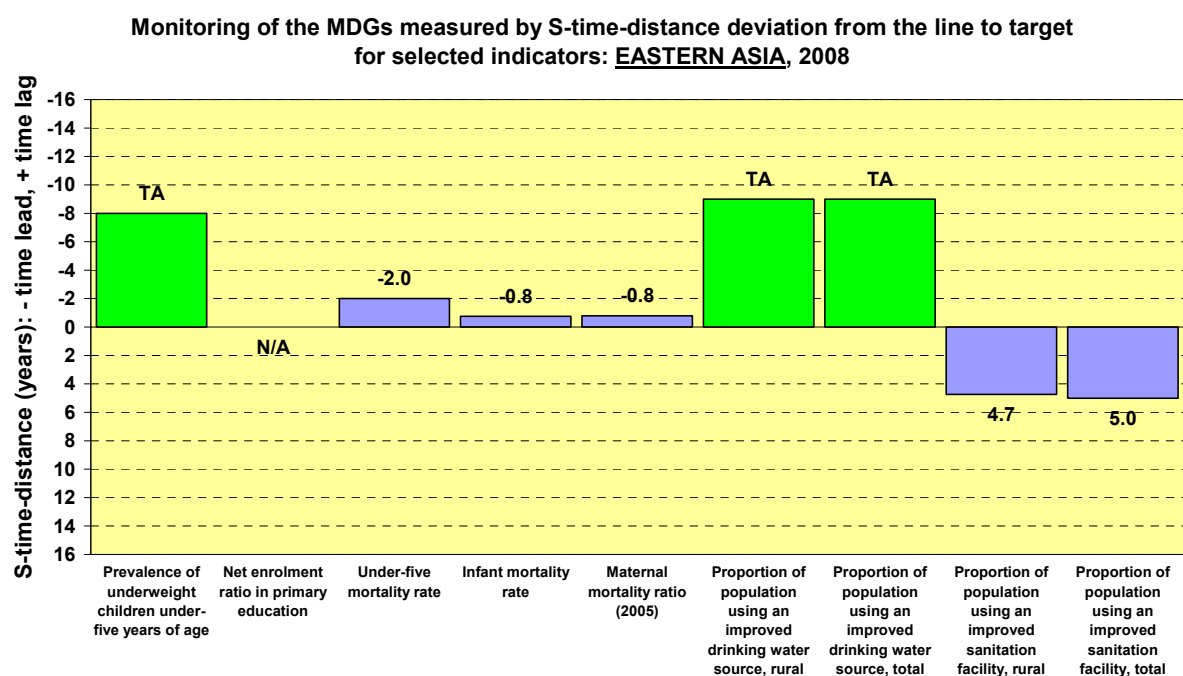


Figure 3d. Time distance view of the implementation of the MDG for Eastern Asia

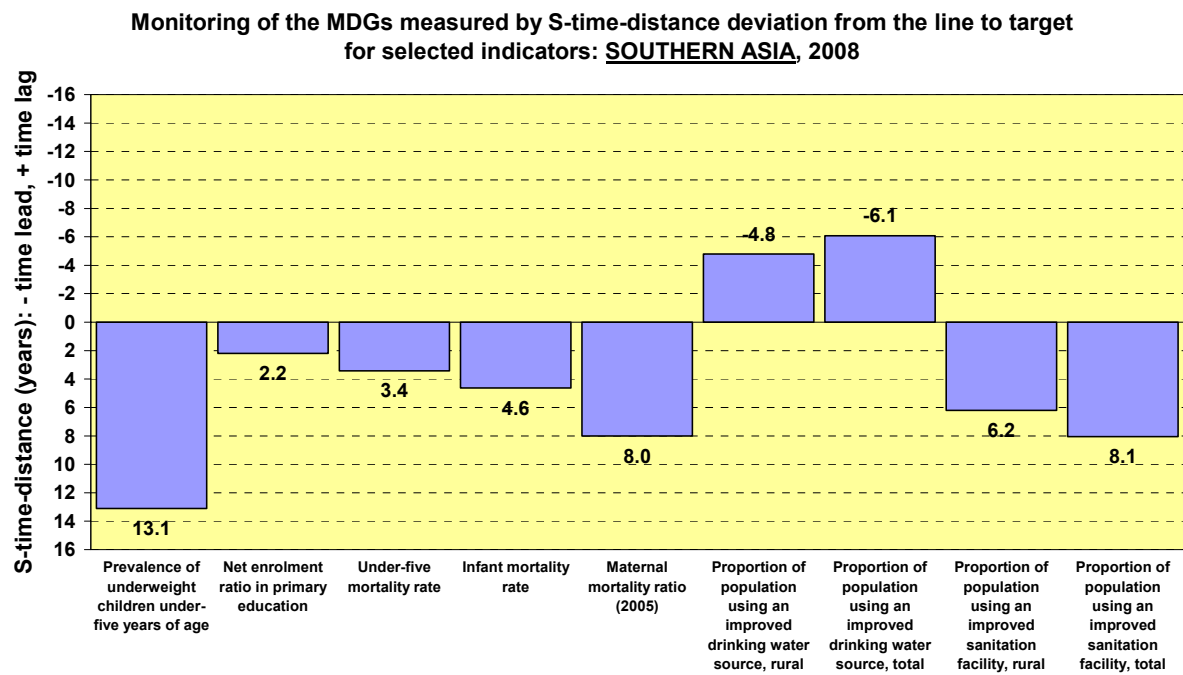


Figure 3e. Time distance view of the implementation of the MDG for Southern Asia

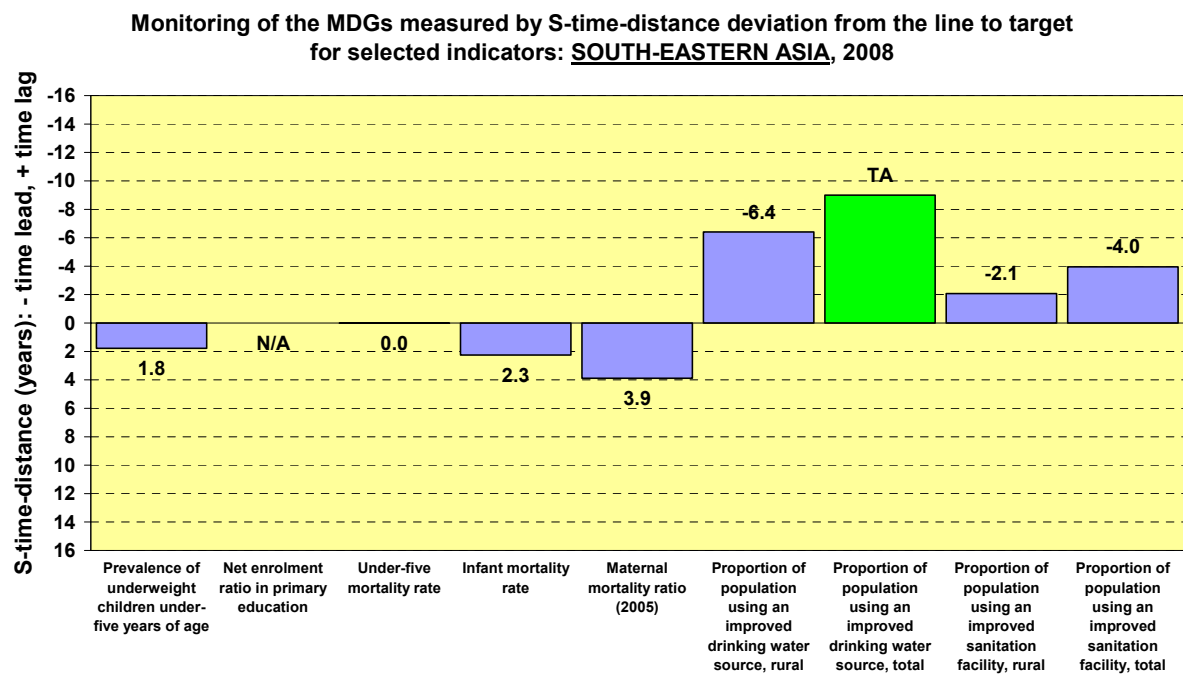


Figure 3f. Time distance view of the implementation of the MDG for South-Eastern Asia

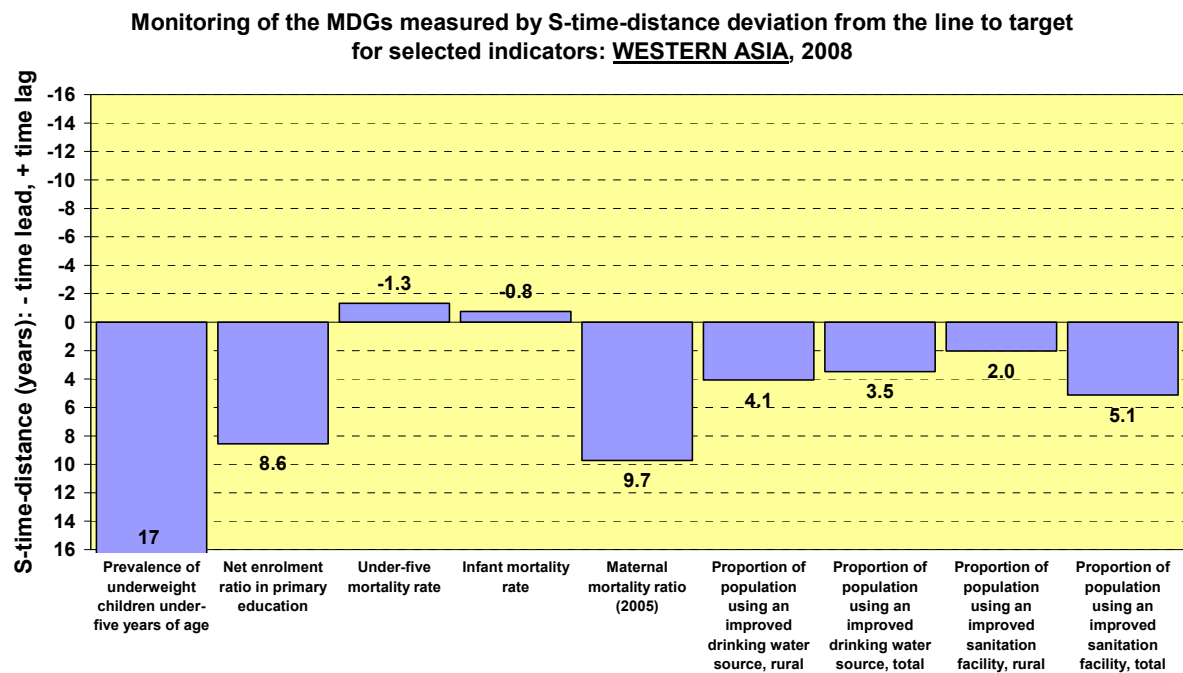


Figure 3g. Time distance view of the implementation of the MDG for Western Asia

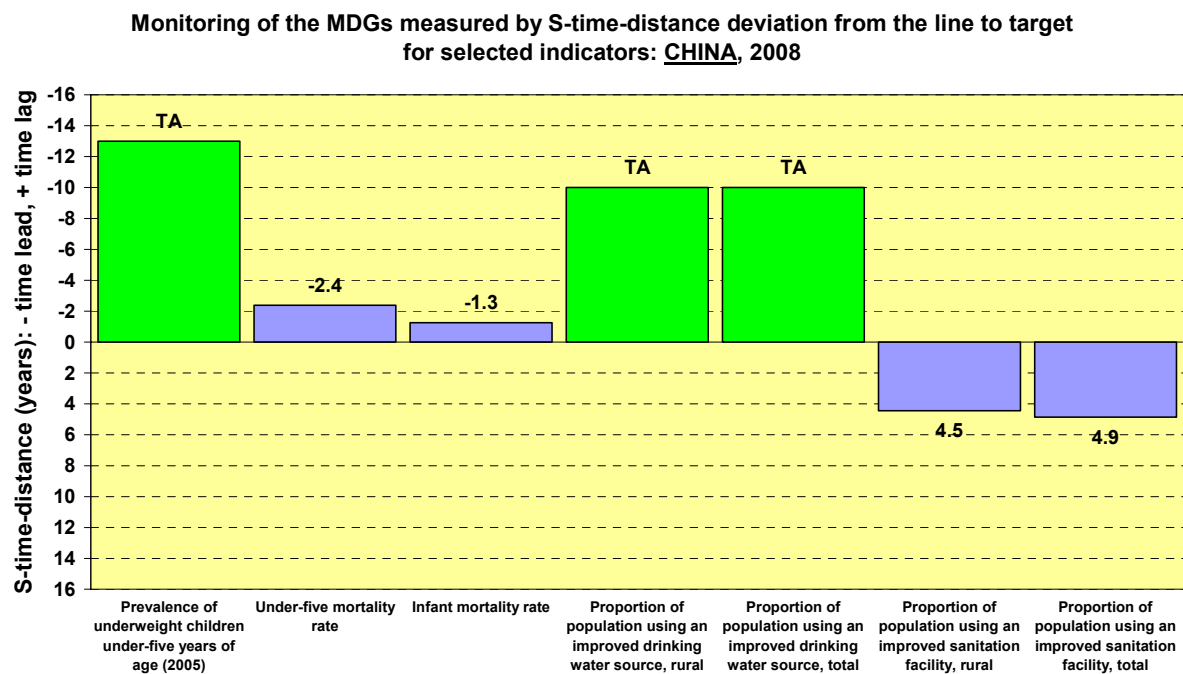


Figure 3h. Time distance view of the implementation of the MDG for China

On the methodological side a comment is in place on the issue of advantages and disadvantages of various statistical measures for measuring implementation of the MDGs targets. We discuss here two static measures of deviation (absolute and relative deviation) and S-time-distance deviation from the line to target. Firstly, all these measures are useful; all are understandable concepts showing diverse perspectives and should be used simultaneously for better understanding of the complex situation. Lack of space is the reason that we concentrate on the time distance aspect here.

Secondly, absolute deviations are expressed in the specific units for each indicator like infant mortality rate per 1000 live birth. They are very important for planning, actions and monitoring in specific fields but cannot be compared directly across a number of indicators because of different units used. Relative deviations like ratios between actual values and calculated values on the line to target (or expressed in percentage deviations) in principle allow comparisons of this aspect across more indicators. When used across many indicators for MDGs implementation the problem is that for certain indicators the desired direction of the line to target is increasing, while for others it is decreasing. This makes it rather cumbersome to follow or to graph such relative measures across indicators with different desired directions as it is mentioned in Easterly (2009).

Thirdly, S-time-distance can deal with such problems of comparisons across more indicators. It has a convenient technical characteristic that it is invariant for monotonous transformations of the compared time series. Negative (or positive) sign for S-time-distance in Table 1 gives the correct result whether such region is ahead or behind of the respective line to target whatever the desired direction of the line to target for the indicator. Similarly, it can in the same way deal with the problem when the same problem is expressed with alternative indicators like child mortality or child survival rate.

The under-five mortality rate per 1000 live birth for 2008 of 72 in Figure 2 can be alternatively expressed as child survival rate of 928 per 1000 live birth. Comparisons with the two respective lines to targets will give the same result for 7.5 years delay for S-time-distance (also the same value of absolute differences of 20 but with different sign) and very different percentage deviations. For child mortality rate the percentage deviation from the respective line to target indicates that the child mortality rate was 38 percent too high, while for child survival rate the relative static measure indicates that it was 2 percent too low – a very different perceptions built on the basis of percentage deviations when the same situation is expressed by two differently specified indicators.

All measures are needed but obviously the time distance information seems to be at least as helpful in providing a proper perception of the progress in implementation or the lack of it as is the percentage difference. The same conclusion was reached in using the time distance monitoring method for analysing delays in delivering Lisbon Strategy targets for the EU (Sicherl 2008).

4. AFRICA - THE RESULTS FOR SUB-SAHARAN COUNTRIES

The section on sub-Saharan countries serves two purposes. Firstly, it is an example how the time distance method for monitoring implementation of MDGs can be performed at the country level. Depending on data availability S-time-distance time lead or time lag from the respective lines to MDG targets were calculated for 8 selected indicators for sub-Saharan countries. This resulted in 317 cases of such calculations.

Secondly, as the results for world regions in Table 1 have shown that the time distances behind the respective lines to the MDGs targets are very large for sub-Saharan Africa we wanted to explore the situation in more details. With the exception for net enrolment ratio in primary education and proportion of population using an improved drinking water source the time delays the lines to targets for the other six indicators range from 10 to 15 years.

Table 2 presents frequency distribution of sub-Saharan countries for S-time-distance deviation from the line to their MDG target for eight selected indicators. This table allows for a more detailed examination of these issues on the basis of between 24 and 48 countries for each indicator depending on data availability, which in total for eight indicators amounts to 317 cases. The first conclusion shows that in only 44 out of 317 cases, i.e. in about 14 percent the current results were worse than the starting 1990 values. The worst situation is for the indicator percent of the population undernourished where for 13 sub-Saharan countries out of 46 (28 percent) the results in 2005 were worse than in 1990.

In general terms across all eight indicators for these countries progress measured at the country level was achieved in the analyzed period in about 86 percent of cases (273 out of 317 cases). Compared with the lines to MDGs targets the situation is very different; S-time-distance analysis shows that about 81 percent of cases are behind the lines to target and 19 percent of cases are ahead of them (about five percent even already reached their 2015 targets).

However, as mentioned in Section 3, considerable delays in the implementation of the MDGs does not mean that substantial progress has not been made in the analyzed period. This is also the case for sub-Saharan Africa, despite its difficult situation. Easterly (2009) argued that MDGs are unfair for Africa and that the degree of their implementation should not be overshadowing the successes achieved. For instance, according to UNICEF (2010) infant mortality for Africa decreased from 101 in 1990 to 79 in 2008 and that for Asia from 63 to 41. In absolute terms both Africa and Asia decreased infant mortality by 22 infants per 1000 live birth, i.e. these are equal achievements in the infant mortality rate. However, the decrease measured in percentage terms for the period 1990-2008 is 22 percent for Africa and 35 percent for Asia.

Obviously there are very different starting positions from which the targeted goal of the two-third decrease of infant mortality and consequently the degree of implementation are calculated. The percentage rule for setting the MDG target thus understates the progress made in Africa and puts a more demanding target in terms of feasibility to regions and countries with more difficult starting positions⁷.

A question was be raised in Section 3 whether the rule that was setting the MDGs targets mostly in relative terms for the aggregate of developing countries and world regions (and implicitly for individual countries), i.e. across all units, was an appropriate approach to balance desirability and feasibility. It is understandable that this made the explanation of the action of the world community easier. However, it may be rather unrealistic to expect that the same targets (e.g. same percentage changes for a given indicator) can be achieved from very different starting positions⁸. In general it remains a very important question for preparation of the next phase of the MDGs.

Table 2. *Frequency distribution of sub-Saharan countries for S-time-distance deviation from the lines to their MDG target*

Selected indicators	Years ahead of the line to MDG target				Years behind of the line to MDG target				Number of countries
	TA	-18 – -12	-12 – -6	-6 – 0	0 – 6	6 – 12	12 – 18	WTS	
Population undernourished, percentage, 2005	2		3	10	6	7	5	13	46
Net enrolment ratio in primary education, 2007-2009			2	6	7	4	2	3	24
Under-five mortality rate, 2008				4	12	15	12	5	48
Infant mortality rate, 2008				3	9	19	12	5	48
Proportion of population with sustainable access to an improved water source, total, 2008	8		1	5	10	8	3	3	38
Proportion of population with sustainable access to an improved water source, rural, 2008	7			4	9	6	8	5	39
Proportion of population with access to improved sanitation, total, 2008				3	6	13	11	4	37
Proportion of population with access to improved sanitation, rural, 2008				3	7	8	13	6	37
Number of countries	17		6	38	66	80	66	44	317
Percentage distribution	5.4%	0.0%	1.9%	12.0%	20.8%	25.2%	20.8%	13.9%	100.0%

Source: Author's calculations based on data from United Nations (2010c)

S-time-distance (- time ahead, + time behind the line to target)

TA - Target for 2015 already achieved

WTS - Actual value is worse than the starting value

5. DELAYS IN OFFICIAL DEVELOPMENT ASSISTANCE

In this section the time distance methodology will be used to evaluate the situation of implementation of the indicator percentage of gross national income devoted to official development assistance (ODA/GNI) in relation to the assumed line to the UN 2015 target of 0.7 percent. An exponential line to this target is assumed and the respective S-time-distance deviations are calculated for the OECD DAC countries. Several of the analysed countries are not officially committed to this target but such common benchmark allows for the relative comparisons of the official development assistance effort. S-time-distance measure was used to get an easily understandable overview of the situation whether the 22 DAC countries are on- or off- the track to this UN target.

Table 3 clearly shows that for the net official development assistance 2009 was another disappointing year. Tracking the timetable for reaching the UN target with time distance showed how widely the performance in 2009 was off the track: the delay of 4.6 years for DAC total means that the actual ODA/GNI value in 2009 was at the level supposed to be achieved already in 2004 on the line to the UN target. The percentage shortfall would amount to 38 percent for the USA and 63 percent for Japan. Also the hypothetical projections for 2010 by the OECD-DAC Secretariat indicate that no radical breakthrough is in sight. Public awareness of these facts should be instrumental for public pressure on the governments for far-reaching improvements in this domain.

Table 3. DAC countries by S-time-distance deviation from the exponential line to the UN ODA/GNI 2015 target for the period 2000 - 2009

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
DAC Countries, Total	0	1.0	1.4	1.9	2.4	0.2	2.0	4.4	4.0	4.6
Sweden	TA	TA	TA	TA	TA	TA	TA	TA	TA	TA
Norway	TA	TA	TA	TA	TA	TA	TA	TA	TA	TA
Luxembourg	TA	TA	TA	TA	TA	TA	TA	TA	TA	TA
Denmark	TA	TA	TA	TA	TA	TA	TA	TA	TA	TA
Netherlands	TA	TA	TA	TA	TA	TA	TA	TA	TA	TA
Ireland	0	-1.2	-3.5	-2.0	-1.0	-1.3	-4.6	-3.9	-4.1	-1.6
Finland	0	0.4	-0.2	0.8	0.8	-2.3	1.3	2.8	1.6	-1.2
Belgium	0	0.4	-2.0	-8.5	1.1	-3.7	-1.4	3.0	1.5	-0.6
Spain	0	-3.0	-0.2	2.4	2.9	2.4	1.2	0.3	-1.3	-0.6
United Kingdom	0	1.0	> 2	1.8	1.8	-2.4	-2.9	4.8	2.4	-0.3
France	0	0.4	-1.7	-2.1	-1.5	-3.0	-2.0	2.8	3.4	1.4
Switzerland	0	1.0	> 2	1.3	0.6	0.1	3.2	4.7	2.7	2.3
United States	0	0.3	0.0	-0.1	-0.1	-1.4	1.5	3.4	3.1	3.7
Germany	0	1.0	2.0	2.4	3.4	0.5	1.5	2.0	2.6	4.9
Austria	0	-4.3	0.4	> 3	4.0	-6.0	-3.6	-3.5	-0.4	5.4
Canada	0	> 1	0.4	> 3	2.9	0.5	3.8	4.8	4.0	6.4
New Zealand	0	1.0	> 2	> 3	> 4	3.9	4.9	5.9	5.4	6.8
Italy	0	-0.3	-1.8	0.6	2.7	-2.1	2.2	3.6	3.3	7.2
Australia	0	> 1	> 2	> 3	> 4	> 5	4.4	4.3	5.3	7.9
Portugal	0	> 1	1.4	> 3	-9.4	> 5	> 6	> 7	7.4	> 9
Greece	0	> 1	1.4	2.4	> 4	> 5	> 6	> 7	7.4	> 9
Japan	0	> 1	> 2	> 3	> 4	5.0	> 6	> 7	> 8	> 9

Source: Author's calculations based on data for ODA/GNI %: OECD (2010), current prices

S-time-distance in years: - actual ahead of path to target + behind the path to target

TA - Target already achieved

> x - Actual value is worse than the starting value, therefore S-time-distance is more than x years

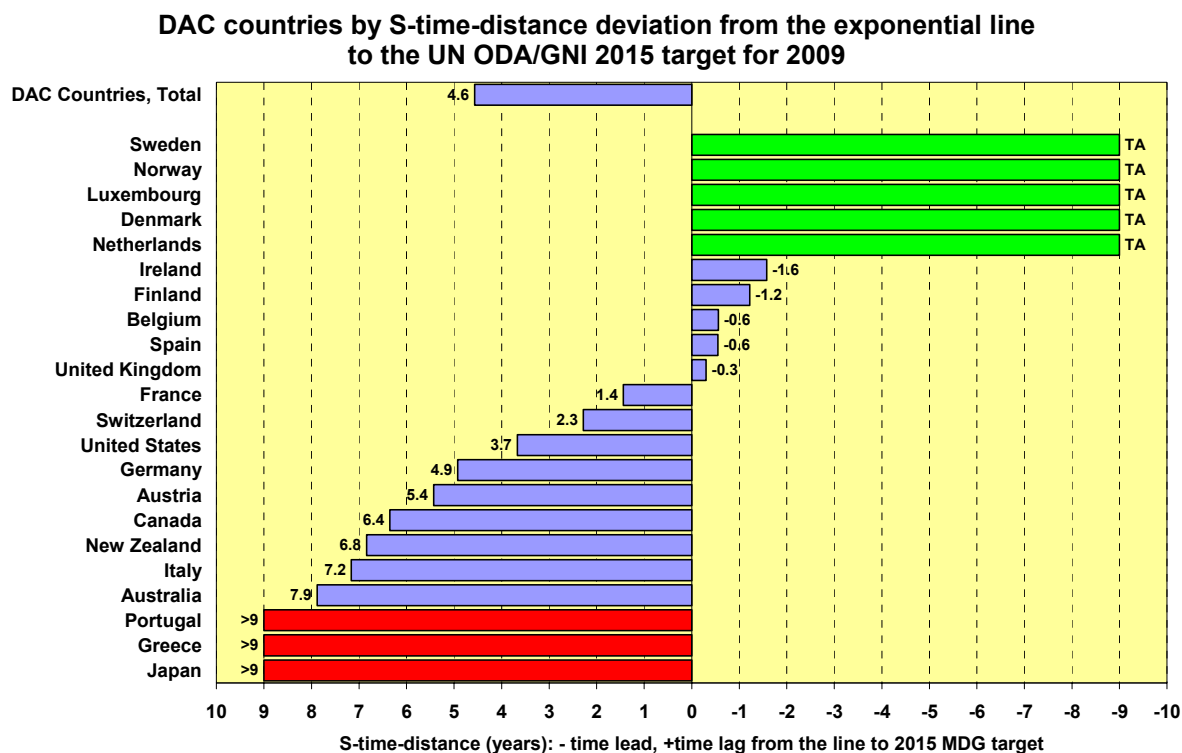


Figure 4. Time distance view of the implementation of the UN ODA/GNI 2015 target

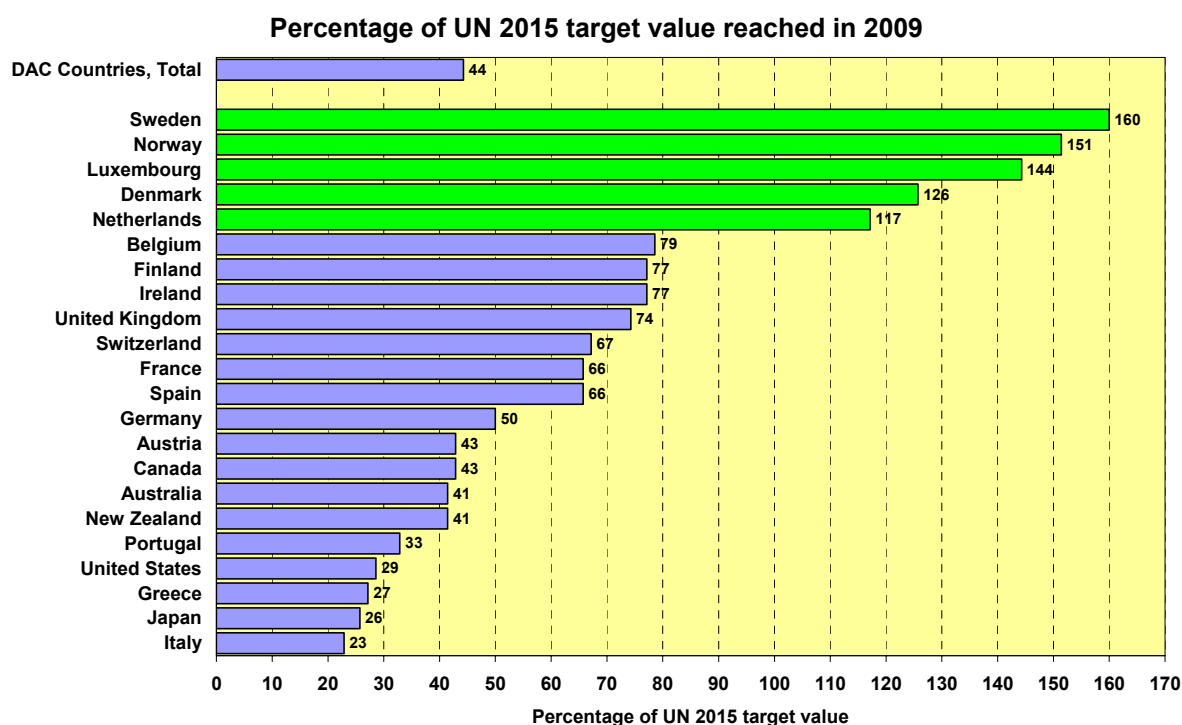


Figure 5. Time distance view of the implementation of the UN ODA/GNI 2015 target

There is a wide gap between the development assistance efforts among the observed 22 countries. Only countries encompassing about 18 percent of population of DAC countries are ahead of the line to the UN target. The ODA/GNI value in the five European countries that have already reached the 0.7 percent target is in relative terms four times higher than in the group of four countries (United States, Japan, Italy and Greece) where it does not exceed 0.2

percent of their GNI. It is sad that the latter group includes more than one half of the population of the DAC countries. Japan, Portugal and Greece were in 2009 contributing even a lower ODA/GNI percentage than in 2000 (see also Figure 4). Overall, countries with 82 percent of population in the DAC countries are behind the line to target, with time delays between 1.4 and 9 years. They need to find the political will to do much better⁹. Figure 5 shows another aspect of the current situation, i.e. comparing the current ODA/GNI percentage with the 2015 UN target of 0.7 percent. The differences among DAC countries are very large indeed. It is clear that if there is a will there is a way.

7. CONCLUSIONS

Implementation of the Millennium Development Goals is an important global issue. It requires continuous monitoring and communication of the situation at the world, regional, national and sub-national levels. Monitoring and evaluation of the degree of implementation of policy or business targets are indispensable phases of the policy circle. For this we need data and institutions but also statistical measures that are transparent and easily understood by everyone. The new generic time distance methodology offers a new view of data that is exceptionally easy to understand and communicate. S-time-distance is expressed in time units thus being an excellent presentation tool that is intuitively understood by policy makers, experts, managers, media and the general public.

Better governance needs many things but also better tools for fact based decision making. In general S-time-distance measures the distance (proximity) in time between the points in time when the two series compared reach a specified level of the indicator X. In the monitoring application for each actual value for a given year it calculates the deviation (lead or lag in time) between the time when such actual value was attained and the time when this level was supposed to be reached on the line to the respective 2015 MDGs target.

S-time-distance is complementing rather than replacing existing statistical measures for monitoring implementation of targets (or plans, budgets, forecasts) and can be used as one of the measures of the implementation of MDGs across a number of relevant indicators by many users at many levels. Deviations from the line to target both at the public administration and at the enterprise levels, i.e. comparing actual values with target values, forecast, budget, plan, etc. can now be measured in two dimensions: static deviation and time distance deviation. Do people understand the concept of S-time-distance deviation from the line to target as used in the monitoring implementation? People understand time and feel time so that S-time-distance deviation from the line to target is as easy as comparing actual arrivals with the train (airplane, bus) timetable.

Using data from the statistical annex of the UN MDG Report 2010 the visualisation of the time distance measure across selected 10 indicators from six areas of MDGs for world regions makes this view of the degree of implementation very clear to all stakeholders. Seeing with new eyes creates new knowledge and better understanding. On the methodological side there is an important discussion of advantages and disadvantages of various statistical measures (absolute and relative static measures and S-time-distance) for measuring implementation of the MDGs targets. All are understandable concepts showing diverse perspectives and should be used simultaneously for better understanding of the complex situation.

The time distance view of MDG implementation for selected indicators is far from satisfactory for the aggregate of developing regions. Only for two indicators (proportion of

population using an improved drinking water source, total and rural) the implementation of the MDGs targets were ahead of the line to target. For the other eight indicators the delays behind the lines to the respective MDGs targets vary between 4.6 years for Official Development Aid (ODA) and 12.9 years for maternity mortality rate.

The most pressing themes in implementing MDGs are maternal mortality ratio and prevalence of underweight children under five years of age. The time distance delay for the aggregate is nearly 13 years for the first and 10 years for the second indicator; with even larger delays in sub-Saharan Africa, Western Asia and Southern Asia. The other five indicators show the range of S-time-distance delays for the aggregate between 5.7 and 7.5 years. On the other hand, e.g. China is an excellent performer; it has already reached their 2015 MDGs targets for four indicators.

Notwithstanding the above conclusions a clear distinction must be made between the progress made in the world in the analysed period and the considerable delays in the implementation of the MDGs. Progress has been made in all selected indicators and in all world regions (though it has been quite uneven across regions as well as across countries within the regions). With respect to MDGs implementation analysis for seven world regions indicated that for four of them the S-time-distances were in general not far from the respective lines to targets, while the unsatisfactory overall results are mainly influenced by the situation in sub-Saharan Africa, Western Asia and Southern Asia.

The general picture is complemented by time distance monitoring of the situation in sub-Saharan countries and of the Official Development Aid. Looking at sub-Saharan Africa by countries for eight indicators it is important to emphasize that progress was achieved in the analyzed period in about 86 percent of cases; for 14 percent the situation in the current period was worse than in 1990. On the other hand, compared with the lines to MDGs targets the situation is very different; S-time-distance analysis shows that about 81 percent of cases are behind the lines to target and 19 percent of cases are ahead of them. On the example of infant mortality (Sicherl 2009b) it was shown that the percentage rule for determining the MDGs target understates the progress made in Africa and puts a much more demanding target in terms of feasibility to regions and countries with more difficult starting positions. This indicates that the rule of same official percentage decrease for units at very different starting positions needs to be re-examined. In general this remains a very important question for preparation of the next phase of the MDGs.

Tracking the timetable for reaching the UN target of 0.7 percent of GNI with time distance showed that the performance in 2009 was off the track: the delay of 4.6 years for DAC total means that the actual ODA/GNI value in 2009 was at the level supposed to be achieved already in 2004 on the line to the UN target. The overall conclusion is that countries with about 82 percent of population of the DAC countries are behind the line to target, with time delays between 1.4 and 9 years. They need to find the political will to do much better.

Time distance is first and foremost important as an innovative concept of looking at data in a novel complementary and intuitively understandable way. The application to monitoring of the implementation of Millennium Development Goals showed that it is useful for bringing about new broader understanding of the situation in a dynamic context and for enriching the policy debate. To facilitate this SICENTER developed a free web tool which allows a variety of interested users including besides such organizations also NGOs, experts, managers,

educators, students and media to monitor with S-time-distance the lead or lag in time of implementation of targets.

It may be that some politicians, some organisations and some experts might not like the additional information on the implementation of targets as it is giving a clear message understandable to everybody. But for the media, NGOs, independent experts and international organisations the transparency provided can be helpful for strengthening the democratic debate. The time distance information seems to be at least as helpful in providing a proper perception of the progress in implementation or the lack of it as is the percentage difference.

It should be reasonably easy to incorporate the S-time-distance methodology for monitoring implementation of the MDGs in the work of the UN, the World Bank and other agencies on these issues. This methodology can be used a standard complementary procedure in numerous other activities of the UN and other international agencies as well as at the national and local levels, like monitoring and evaluation of implementation of development plans, policy targets and operational projects as well as for monitoring budgets. Seeing with new eyes creates new knowledge and better understanding.

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NOTES

¹ The policy cycle goes from problem identification to identification and analysis of possible solutions, to selection of policy and targets for actions, to their implementation and to the control phase of monitoring and evaluation of the implementation. Without a thorough monitoring the control functions of the process will not be utilised properly and the signals for the needed changes would be lost. Time distance evaluation of the implementation of targets adds a new easily understood dimension without replacing existing method of monitoring and evaluation. It is difficult to understand why the UN family at numerous levels does not take advantage of this freely available new complementary methodology.

² This innovation opens the possibility for simultaneous two-dimensional comparisons of time series data in two specified dimensions: vertically (standard measures of static difference) as well as horizontally (Sicherl time distance), providing a new dimension of analysis to a variety of problems.

³ For extensions to measuring deviations between estimated and actual values in regressions and models, forecasting, error in timing and causality, monitoring, business cycle analysis see Sicherl (1994, 1997), to variables other than time Sicherl (1999). It is exactly this specification of deviations between actual and estimated values in S-time-distance analysis that was used by Granger for the extension of the time distance concept as a criterion for evaluation of forecasting models (Granger and Jeon, 1997 and 2003). The new view of information, using levels of the variable(s) as identifiers and time as the focus of comparison, is theoretically universal, intuitively understandable and can be usefully applied to a wide variety of substantive fields at macro and micro levels (e.g. ITU, 2009 and 2010, are examples where the S-time-distance measure was used for benchmarking as one of the statistical measures for analysing digital divide in the world). Here we deal with less complex and easily understandable application for monitoring implementation of the MDGs targets and similar applications.

⁴ The free web tool allows the user to track the implementation of targets by using his/her choice of data and assumptions.

⁵ For earlier work on MDGs see my presentation at the International Conference on the Millennium Goals Statistics, Manila at the invitation of UNSD (Sicherl 2007b).

⁶ The same conclusion does not hold on the country level.

⁷ See also Easterly (2009) for the elaboration of the historical experience of the relationship between initial child mortality and subsequent 25-year percentage reduction.

⁸ More flexibility and realistic adjustments are needed in determining targets from very different initial conditions. The EU has already gone through this phase. At the beginning of the decade a uniform set of Lisbon Strategy targets was specified. Later this was changed to the NRP (National Reform Programmes) where the targets are different for different countries and also better incorporated in their specific strategies and policies. Another example is the MDGs Plus targets established in some developing countries.

⁹ Here we are not dealing with the complex problem of confronting expectations of aid and development successes as it is discussed in Clemens, Kenny and Moss (2007). However, it is clear that ODA is by itself in considerable delay for the majority of DAC countries and that the situation is probably worsening in the current crisis. However, there are several remarkable examples of five European countries which contributed more than 0.7 percent of GNI for the whole analysed period.