2015-16 State of the Future

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2015 State of the Future Index

The State of the Future Index is an indication of the 10-year outlook for the future, based on historical data of selected variables for the previous 20 or more years and on judgments about the best and worst plausible 10-year outcomes for each variable. It is constructed with key variables that are individually forecast and that in aggregate can indicate the potential trend of the future.

The SOFI is intended to show the direction and intensity of change and to identify the roles of the factors (variables) responsible. It provides a mechanism for studying the relationships among the items of the system—how changes to individual or several variables ripple throughout a system. The SOFI is useful for assessing the consequences of different policies and for showing the combined potential outcomes in an easy to understand fashion. It has been produced by The Millennium Project since 2000. For the methodology, see “State of the Future Index” in the Futures Research Methodology section of GFIS (http.themp.org).

The variables included in the SOFI, as well as their respective weights (importance to the system), and the “best” and “worst” values in 2025 have been decided through RTD studies and updated by the Millennium Project staff. The sources of data have been carefully considered, are deemed to be reliable, and have good historical data records.

However, combining many variables into a single index number can lead to loss of detail, compensating losses in some areas with progress in the others; this could smooth the look of the SOFI line, as well as mask variations among sectors, regions, or nations. The apparent precision of an index should not be mistaken for accuracy.

SOFI is in continuous evolution and adapted to global changes. Box 2.1 presents the variables included in the computation of the 2015 SOFI. The most important changes to the computation of the 2015 SOFI compared with earlier SOFIs include:

- New variables were added and some variables were replaced with new ones (e.g., “Share of high-skilled employment” has been added; “Wars (with over 1,000 deaths)” has been replaced with “Wars and armed conflicts”).
- Historical data were updated, and new series were inserted when old series were discontinued.
- New curve fit equations were derived, and new interpolations were made for missing data.
The baseline SOFI that resulted from the use of the new data sets for the variables is shown in Figure 2.1. The data and their sources, extrapolations, and equations for forecasting are available in the State of the Future Index section in GFIS (http://themp.org) under “Research.”

A one-to-one comparison with the SOFIs prepared in earlier years would be misleading, since some of the variables have changed. However, overall, the shape of this year’s SOFI is similar to earlier indexes: the growth rate over the coming 10 years will be slower than over the past 20 years. This is mostly due to the slow recovery after the 2008 economic crises. It is reflected in the SOFI decrease in 2009 and a smaller decrease in 2011. One of the variables that has a large impact on the 2015 SOFI projection is the number of terrorist attacks. If terrorism could be contained, the world outlook and the rate of growth would appear to be considerably better.

A sensitivity analysis (using multiple regressions) revealed that the following variables would have a highly significant impact on the overall SOFI:

- Terrorism incidents
- Economic income inequality
- Foreign direct investment, net inflows
- Renewable internal freshwater resources per capita
- Energy efficiency (GDP per unit of energy use)

Figure 2.3 shows how the SOFI would be affected by 25% improvements in energy efficiency and income inequality by 2025. The compounded effect—if both were to occur—would produce a 5.15% improvement to the global SOFI, while the individual effects would be 1.8% improvement for increased energy efficiency and 3.2% for reduced income inequality.

*  *  *

One of the advantages of computing the SOFI is the identification of the areas where we are winning or losing or stagnating—thereby helping set priorities. Figures 2.3 and 2.4 show where humanity is making progress and where more political attention and efforts are needed. This can be further analyzed by assessing the individual variables and their potential trajectories. (Figures 2.11 to 2.38 at the end of this section show the graphs of the variables with their respective extrapolations.)

The world seems to be making progress in more areas than it is regressing or stagnating in, but since the areas of stagnation or regress are crucially important for human and planetary survival, addressing them should be a top priority.
Figure 2.1 State of the Future Index 2015

Figure 2.2 State of the Future Index 2015 with 25% improvements of Energy Efficiency and Income Inequality between 2016 and 2025
Box 2.1 Variables included in the computation of 2015 SOFI

1. GNI per capita, PPP (constant 2011 international $)
2. Economic income inequality (income share held by highest 10%)
3. Unemployment, total (% of world labor force)
4. Poverty headcount ratio at $1.25 a day (PPP) (% of population)
5. CPIA transparency, accountability, and corruption in the public sector rating (1=low; 6=high)
6. Foreign direct investment, net inflows (BoP, current $, billions)
7. R&D expenditures (% of GDP)
8. Population growth (annual %)
9. Life expectancy at birth (years)
10. Mortality rate, infant (per 1,000 live births)
11. Prevalence of undernourishment (% of population)
12. Health expenditure per capita (current $)
13. Physicians (per 1,000 people)
14. Improved water source (% of population with access)
15. Renewable internal freshwater resources per capita (cubic meters)
16. Biocapacity per capita (g ha)
17. Forest area (% of land area)
18. Fossil fuel and cement production emissions (MtC/yr)
19. Energy efficiency (GDP per unit of energy use (constant 2011 PPP $ per kg of oil equivalent))
20. Electricity production from renewable sources, excluding hydroelectric (% of total)
21. Literacy rate, adult total (% of people aged 15 and above)
22. School enrollment, secondary (% gross)
23. Share of high-skilled employment (%)
24. Number of wars and armed conflicts
25. Terrorism incidents
26. Freedom rights (number of countries rated “free”)
27. Proportion of seats held by women in national parliaments (% of members)
28. Internet users (per 100 people)
**Figure 2.3 Where we are winning**

<table>
<thead>
<tr>
<th>Category</th>
<th>1995</th>
<th>2005</th>
<th>2015</th>
<th>2025</th>
</tr>
</thead>
<tbody>
<tr>
<td>GNI per capita (PPP, 2011 international $)</td>
<td>9,096.68</td>
<td>11,488.75</td>
<td>15,039.57</td>
<td>20,017.10</td>
</tr>
<tr>
<td>Poverty ($1.25/day, PPP) (%)</td>
<td>33.63</td>
<td>21.10</td>
<td>11.92</td>
<td>7.16</td>
</tr>
<tr>
<td>Foreign direct investment, net inflows (US$, billions)</td>
<td>1,358.71</td>
<td>1,923.62</td>
<td>2,075.25</td>
<td>319.89</td>
</tr>
<tr>
<td>Freedom (number of countries rated free)</td>
<td>78.00</td>
<td>89.00</td>
<td>90.21</td>
<td>91.00</td>
</tr>
<tr>
<td>Women in national parliaments (% of members)</td>
<td>12.42</td>
<td>16.49</td>
<td>22.10</td>
<td>32.89</td>
</tr>
<tr>
<td>Share of high skilled employment (%)</td>
<td>13.80</td>
<td>15.70</td>
<td>18.30</td>
<td>19.40</td>
</tr>
<tr>
<td>School enrollment, secondary (% gross)</td>
<td>56.21</td>
<td>63.72</td>
<td>75.89</td>
<td>88.78</td>
</tr>
<tr>
<td>Literacy rate, adult total (% of people ages 15+)</td>
<td>79.43</td>
<td>84.27</td>
<td>86.10</td>
<td>90.84</td>
</tr>
<tr>
<td>Electricity from renewables, excl. hydro (% of total)</td>
<td>1.19</td>
<td>6.74</td>
<td>19.39</td>
<td></td>
</tr>
<tr>
<td>Energy-Efficiency (GDP/unit of energy use)</td>
<td>5.77</td>
<td>6.69</td>
<td>7.74</td>
<td>8.56</td>
</tr>
<tr>
<td>Improved water sources (% population with access)</td>
<td>79.17</td>
<td>85.63</td>
<td>90.54</td>
<td>91.71</td>
</tr>
<tr>
<td>Physicians (per 1,000 people)</td>
<td>1.30</td>
<td>1.45</td>
<td>1.61</td>
<td>1.76</td>
</tr>
<tr>
<td>Health expenditure per capita (US$)</td>
<td>263.50</td>
<td>711.01</td>
<td>1,171.94</td>
<td>1,610.51</td>
</tr>
<tr>
<td>Prevalence of undernourishment (% population)</td>
<td>21.33</td>
<td>17.64</td>
<td>12.44</td>
<td>8.67</td>
</tr>
<tr>
<td>Mortality rate, infant (per 1,000 live births)</td>
<td>59.70</td>
<td>44.20</td>
<td>30.04</td>
<td>20.47</td>
</tr>
<tr>
<td>Life expectancy at birth (years)</td>
<td>66.44</td>
<td>69.04</td>
<td>71.51</td>
<td>73.46</td>
</tr>
<tr>
<td>Population growth (annual %)</td>
<td>1.49</td>
<td>1.21</td>
<td>1.13</td>
<td>1.16</td>
</tr>
<tr>
<td>Internet Users (per 100 people)</td>
<td>15.80</td>
<td>45.73</td>
<td>90.12</td>
<td></td>
</tr>
</tbody>
</table>

*Note: Data for 2025 is projected.*
SOFI can be—and has been—computed for nation-states. SOFIs could also be constructed for different domains (e.g., a SOFI for artificial intelligence or a SOFI for the knowledge economy). The national SOFIs that have been computed over the years are available in the State of the Future Index section in GFIS, under “Research.” This year, the featured national SOFIs are those computed by the V4 SOFI project conducted by a consortium of MP Nodes of the Czech Republic, Hungary, Poland, and Slovakia. The V4 SOFI project has been funded by a grant from the International Visegrad Fund and was led by the Polish Society for Futures Studies. The set of variables included in the V4 2014 SOFI is presented in Box 2.2. Figures 2.5 to 2.9 show the respective national SOFIs as well as the composed V4 SOFI. The entire study is available at www.sofi.4cf.pl.

The V4 SOFI study also used the national comparison SOFI to compare the SOFI of the four countries. Further analysis of this comparison could help highlight areas of progress and develop an understanding for why some countries are making more progress than others and therefore, when possible, promote opportunities for learning from each other’s experience. Figure 2.10 presents the resulting comparison graph. With further funding and additional European partners, the V4 project consortium is planning to expand the SOFI computation for other European countries and develop a more Europe-specific set of variables (Regional-Focus SOFI).
### Box 2.2 Variables included in the computation of V4 2014 SOFI for Czech Republic, Hungary, Poland, and Slovakia

1. CO₂ emissions (% of global emissions)
2. Non-fossil fuel energy consumption (% of total)
3. Food availability (kcal/cap/day)
4. Forest area (% of national land area)
5. Freedom level (as measured by Freedom House surveys, Country Score: 1 = completely free; 7 = completely not free)
6. GDP per capita (PPP, current international $)
7. GDP per unit of energy use (PPP $ per kg of oil equivalent)
8. Homicides, intentional (per 100,000 population)
9. Infant mortality (deaths per 1,000 live births)
10. Internet users (per 1,000 population)
11. Levels of corruption (as measured by Transparency International surveys)
12. Life expectancy at birth (years)
13. Literacy rate, adult total (% of people aged 15 and above)
14. Number of refugees displaced from the country (% of national population)
15. People killed or injured in terrorist attacks (% of national population)
16. People voting in elections (% of national population of voting age)
17. Physicians (per 1,000 people)
18. Population growth rate (annual %)
19. Population lacking access to improved water sources (% of national population)
20. Poverty headcount ratio at $1.25 a day (PPP) (% of national population)
21. Prevalence of HIV (% of national population)
22. R&D expenditures (% of GDP)
23. School enrollment, secondary (% gross)
24. Seats held by women in national parliament (% of all national members)
25. General government gross debt (% of GDP)
26. Unemployment, total (% of national labor force)
Figure 2.5 2014 SOFI Czech Republic

Figure 2.6 2014 SOFI Hungary
SOFI’s computation at global, national, and regional or sectoral levels is being continuously improved in methodology, set of variables, and computation technique. The Millennium Project is also working on developing an automated computation, to make it easier for anyone to construct SOFIs tailored to their specific objectives.
Variables included in the global 2015 SOFI
The “best” and “worst” values in 2025 have been decided through RTD studies and updated by the Millennium Project staff.

Figure 2.11 GNI per capita, PPP (constant 2011 international $)

Source: World Bank indicators, with Millennium Project compilation and forecast

Figure 2.12 Economic income inequality (Income share held by highest 10%)

Source: World Bank indicators, with Millennium Project compilation and forecast
Figure 2.13 Unemployment, total (% of world labor force)

Source: ILO 2015 global report, with Millennium Project compilation and forecast

Figure 2.14 Poverty headcount ratio at $1.25 a day (PPP) (% of population)

Source: World Bank indicators, with Millennium Project compilation and forecast
Figure 2.15 CPIA transparency, accountability, and corruption in the public sector rating (1=low; 6=high)

Source: World Bank indicators, with Millennium Project compilation and forecast

Figure 2.16 Foreign direct investment, net inflows (BoP, current $, billions)

Source: World Bank indicators, with Millennium Project compilation and forecast
Figure 2.17 R&D expenditures (% of GDP)

Source: World Bank indicators, with Millennium Project compilation and forecast

Figure 2.18 Population growth (annual %)

Source: World Bank indicators, with Millennium Project compilation and forecast
Figure 2.19 Life expectancy at birth (years)

Source: World Bank indicators, with Millennium Project compilation and forecast

Figure 2.20 Mortality rate, infant (per 1,000 live births)

Source: World Bank indicators, with Millennium Project compilation and forecast
Figure 2.21 Prevalence of undernourishment (% of population)

Source: World Bank indicators, with Millennium Project compilation and forecast

Figure 2.22 Health expenditure per capita (current $)

Source: World Bank indicators, with Millennium Project compilation and forecast
Figure 2.23 Physicians (per 1,000 people)

Source: World Bank indicators, with Millennium Project compilation and forecast

Figure 2.24 Improved water source (% of population with access)

Source: World Bank indicators, with Millennium Project compilation and forecast
Figure 2.25 Renewable internal freshwater resources per capita (cubic meters)

Source: World Bank indicators, with Millennium Project compilation and forecast

Figure 2.26 Biocapacity per capita (gha)

Source: Global Footprint Network, with Millennium Project compilation and forecast
Figure 2.27 Forest area (% of land area)

Source: World Bank indicators, with Millennium Project compilation and forecast

Figure 2.28 Fossil fuel and cement production emissions (MtC/yr)

Source: CDIAC Global Carbon Budget 2014, with Millennium Project compilation and forecast
Figure 2.29 Energy efficiency (GDP per unit of energy use (constant 2011 PPP $ per kg of oil equivalent))

Source: World Bank indicators, with Millennium Project compilation and forecast

Figure 2.30 Electricity production from renewable sources, excluding hydroelectric (% of total)

Source: World Bank indicators, with Millennium Project compilation and forecast
Figure 2.31 Literacy rate, adult total (% of people aged 15 and above)

Source: World Bank indicators, with Millennium Project compilation and forecast

Figure 2.32 School enrollment, secondary (% gross)

Source: World Bank indicators, with Millennium Project compilation and forecast
Figure 2.33 Share of high-skilled employment (%)

Source: ILO 2015 global report, with Millennium Project compilation and forecast

Figure 2.34 Number of wars and armed conflicts

Source: List of wars by date, Wikipedia, with Millennium Project compilation and forecast
Figure 2.35 Terrorism incidents

Source: Start Project, University of Maryland, with Millennium Project compilation and forecast

Figure 2.36 Freedom rights (number of countries rated "free")

Source: Freedom House, with Millennium Project compilation and forecast
Figure 2.37 Proportion of seats held by women in national parliaments (% of members)

Source: IPU, with Millennium Project compilation and forecast

Figure 2.38 Internet users (per 100 people)

Source: World Bank indicators and Internetworldstats, with Millennium Project compilation and forecast