

USL Paper Series 1: back of the envelope calculations to estimate the USL1 contributions to resolve four of the most critical global crises from the economic or budgetary points of views of governments and the UN

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ABSTRACT

We demonstrate here, with a bit of over-generalization to point the most critical issues for both the governments worldwide and the UN, that the USL1 (which is the version 1 of USL to boost the worldwide or national average math skills for students by quickly advancing 2 years) alone will have the immense economic growth impacts around the world after the short math education reform times in the participating nations. As the world average GDP growths may rise very fast with 3-5-10-15 times within first a few decades, the 4 of the most grave global crises that can be helped by budgeting or financing to resolve them can be solved. These 4 global crises treated here are 1) the transition to the quasi-complete renewable energy 2) sovereign debts 3) climate change damage costs 4) the post-2015 costs. The surplus gains of the national or world GDPs due to USL1 alone seem to be able to resolve all of them at the same time and for the post-2015 multiple times more. Finally, we provide the USL-5UE-URF Trio schemes to the governments, NGOs, and the UN.

NOTE: Throughout this paper, we **will overgeneralize a bit to focus on the gist of the grave global crises** to propose a series of very unconventional solutions for all of them because **the main target audiences are the policy makers of the national governments, NGO leaders, and the UN**. Posting this first draft so that some policy makers can get the glimpses of what is going on.

INTRODUCTION

This paper is primarily to demonstrate the critical potential of the USL1 for the governments and the UN around the world. The critical crises we are all facing and challenging all the governments and the UN seem to be the complete transition to the Renewable Energy, Sovereign debt crises, climate change costs, and the upcoming Post-2015 operation costs because if we can achieve them, the benefits are astronomical, but the costs are too daunting. The average estimated costs for an average country to deal with all of these four simultaneously may require roughly 6-12% of their GDPs, bordering typically about 10% of the GDPs, which is too daunting for any government to spend as they will gobble up most of the national annual budgets, but if the USL1 is embraced by these countries, over the next several decades alone all these high costs will be relatively only 0.5-1% of their annual GDPs because the USL1 contribution factors to their economy will be 5-10-30 times larger than the current GDPs. This paper summaries the key points simply relying on the back of the envelope calculations with the intuitive reasoning eschewing the more sophisticated economic calculations and reasoning as they may alienate the attentions of the policy makers in a short time frame.

THE PATTERNS OF GLOBAL CRISES (for the governments and the UN):

In our analysis - although over-generalized a bit apart from the 3 attributes from above - is practically due to the overwhelming amount of money to resolve problems. Let me give you some of the most boiling examples.

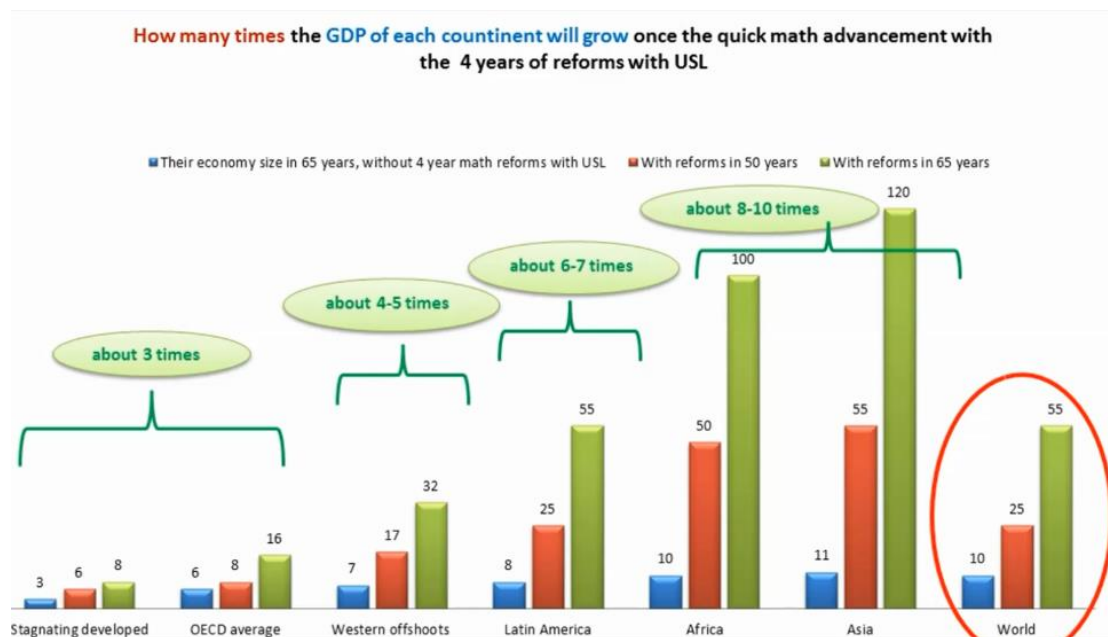
- 1) **The total costs for transitioning to 95-100% Renewable Energy in 20-45 years** ~ 1x-3x of the current average annual total GDP of the corresponding country or the world average (let's say 2x in average). (Appendix 1)
- 2) **The total national sovereign debts of EU ~ 0.7-2x of the total current average annual GDP of EU countries.** (Let's say getting closer to 1x in average.) In the USA, over 1x. In Japan about 3x. For the non-EU countries, the average world public debts per GDP still seems to range about 0.6x-0.8x of the average world GDP. (The various debt data are given in the Appendix 2.)
- 3) The expected - if you believe in the anthropogenic climate changes - **total climate damage on economy over the next 40-50 years** ~ may range 0.2x-0.7x of the total current annual world GDP
- 4) **The total actual expenditures for the MDGs over the past 1.5 decades** ~ 0.05x of the total current annual world GDP (while the originally proposed budgets would have used close to ~ 0.15x of the world GDP in total) (Appendix 4)

There are many other crises, but as these 4 may be considered as the most deadly costly, for both the national governments & the UN, I will focus only on these.

THE ESTIMATED TOTAL COSTS OF THE 4 MOST CRITICAL GLOBAL CRISES

If you combine the total costs for all these 4 crises, the total costs for the next 40-50 years roughly ~ 4.5x-5x of the total current annual world GDP. Even if we linearly average out these total over 40-50 years - for the sake of simplicity - the annual average costs ~ 10% of the entire GDPs of the corresponding countries (although the average sovereign debts outside EU is less).

So, no wonder governments and the UN have been sluggish to tackle these problems. What if there is a totally unorthodox solutions for all of these and beyond? There is and that is this paper focuses on.



Source: the estimated calculations are by the author (2014) from the USL Go Global website

As you can see the projections of the GDP growths between the expected GDP sizes without USL1 vs. those with USL1 reforms.

If I overgeneralize slightly again, we have **a sort of Moore's Law for the relationship between the human capital (based on the math skill levels of students) vs. the GDP growth (rates).** The details are in the website, but the **basic rule of thumb** from our version of Moore's Law is what we call **HWU1 rules**: it is about the **extra average GDP surplus gains of the world per year** as summarized below:

- 1) In 1 generation, about 2-3x per yr.
- 2) In 2 generations, about 10x per yr.

- 3) In 3 generations, about 40x per yr.

If you simply evenly distribute these over each period, for the sake of simplicity,

- 1) In 1 generation, each year average surplus gain is ~ 10% of GDP
- 2) In 2 generations, each year average surplus gain is ~ 50% of GDP
- 3) In 3 generations, each year average surplus gain is ~ 200% of GDP

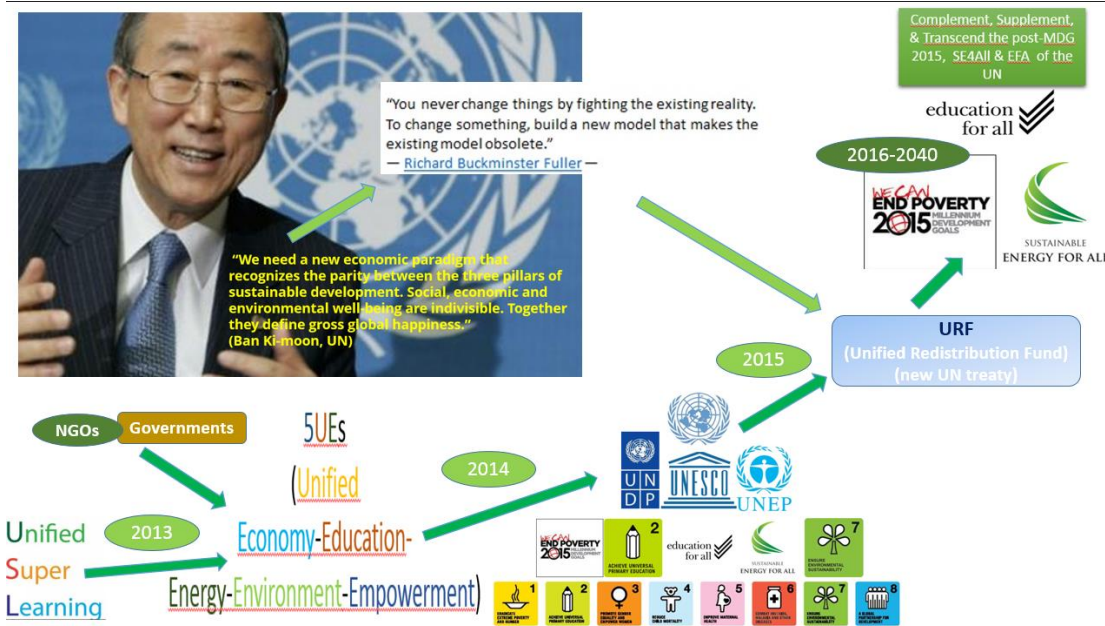
IMPLICATIONS

So, what do these mean?

- 1) So, even within the first 20-25 years with USL1, the entire costs for the gravest global crises are taken care (just using the USL1 alone) and after then the profits increase exponentially.
- 2) This means the Post-2015, SE4All, Education For All, Debt crises, Environmental crises are all not only sufficiently funded, but to have multiple times more funded to resolve them 2, 3, 5 plus times faster than the current modus operandi of MDGs, Post 2015 & SE4All etc., all combined together ... within next a few decades. After then, we have the abundant surpluses. In fact, virtually all non-geopolitical crises that can be resolved by funding can be resolved.

CONCLUSIONS

In spite of the simple-minded, back of the envelope calculations to demonstrate the crux of the USL1 solutions, we can easily see the staggering implications of USL1 movement if the governments, NGOs, and the UN are willing to embrace it and join to start preliminary pilot study runs to push a new international law to overcome the gravest global challenges of all at least from the budgetary or economic point of view.



Furthermore, USL1 is only the appetizer version of the entire USL series. USL2 and other later versions will be used only when the world embraces it and initiate the collaborations quickly and decisively to help bring us to the next stage of humanity. If we can do this much with only the appetizers, how much can be done with the full course of action?

So, we should take action by promoting these ideas, stir the open debates, to push this to the UN and create an international treaty to adhere to the 5UEs as below.

For more details, please visit our website: www.uslglobal.com

REFERENCES

Devarajan, S., M. J. Miller, and E. V. Swanson. 2002. Goals for Development: History, Prospects and Costs. World Bank Policy Research Working Paper. Washington, DC: World Bank.

UN Main Report, Ch. 17,

<http://www.unmillenniumproject.org/documents/MainReportChapter17-lowres.pdf>

World Bank. 2008. Global Monitoring Report 2008: MDGs and the Environment:

APPENDIX 1

“The transition to a global renewable energy economy could save \$71 trillion by the year 2050, according to an IEA report.” (This is roughly on par with the current world GDP.)

Source:

<http://cleantechnica.com/2014/09/05/net-savings-71-trillion-2050-transition-renewable-energy/>

“[Ceres](#), a network of investors representing trillions of dollars in assets, and a [Zayed Future Energy Prize winner](#), is well aware of this point. And so is the International Energy Agency. “The longer we wait, the more expensive it becomes to transform the global energy system,” a recent IEA report that Ceres highlighted states.

The report also puts a number on these things. It projects that we will need to invest \$44 trillion globally by 2050 in order to keep global warming under 2 degrees Celsius. That’s about \$1.2 trillion per year. ”

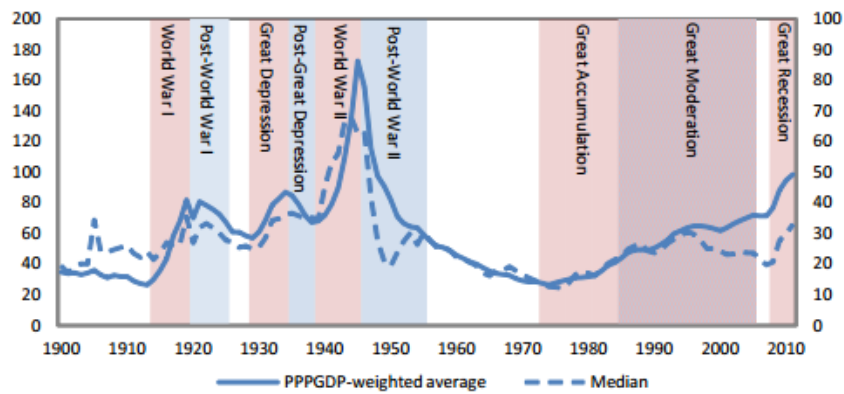
Source:

<http://sustainnovate.ae/en/innovators-blog/detail/71-trillion-bonus-for-us-if-we-switch-to-clean-energy>

NOTE: we will update data in later drafts

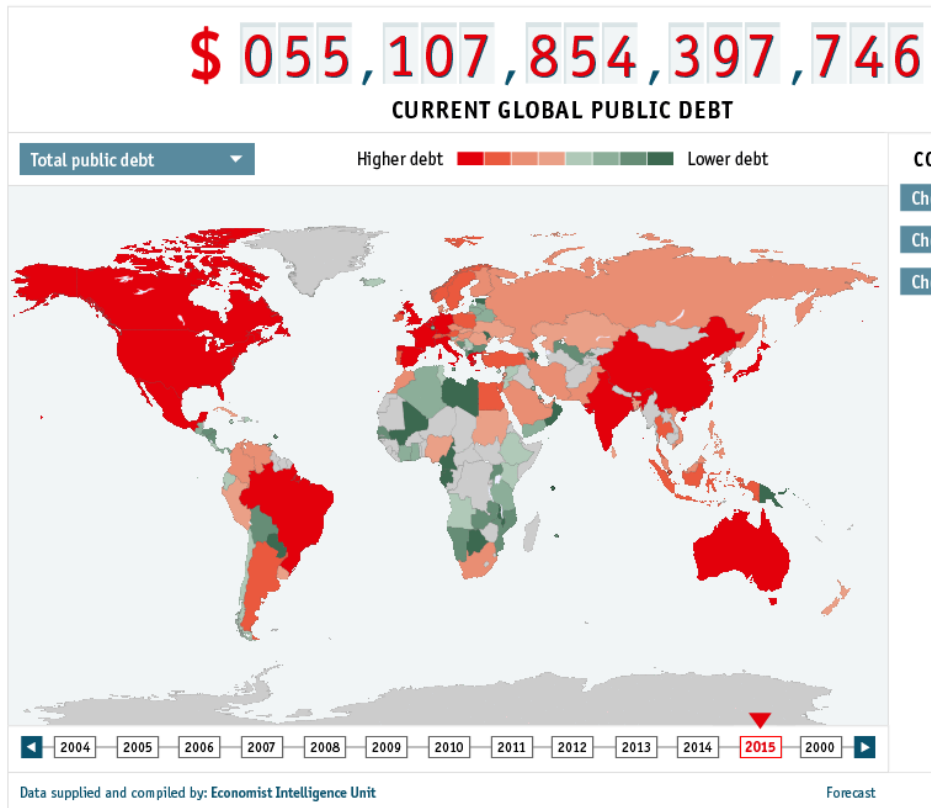
APPENDIX 2

Figure 1. Debt-to-GDP Ratio in Advanced Economies, 1900-2011¹



Source: IMF working paper (2014), <http://www.imf.org/external/pubs/ft/wp/2014/wp14162.pdf>

Figure 2. Current Global Public Debt



Source: http://www.economist.com/content/global_debt_clock on January 09, 2015

Figure 3. Public Debts of the EU countries

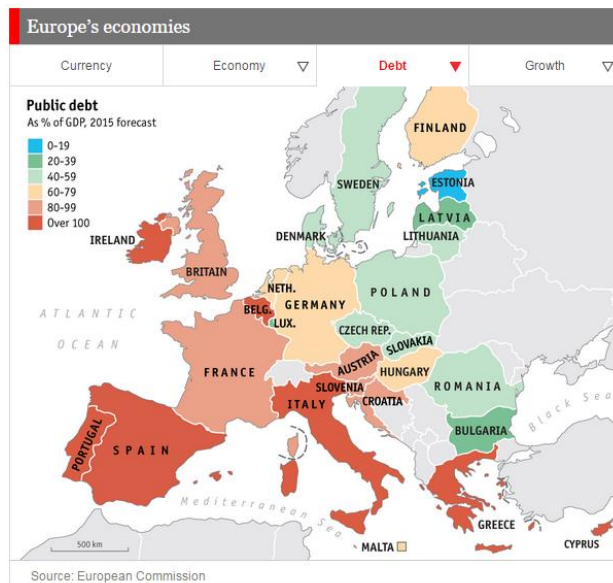
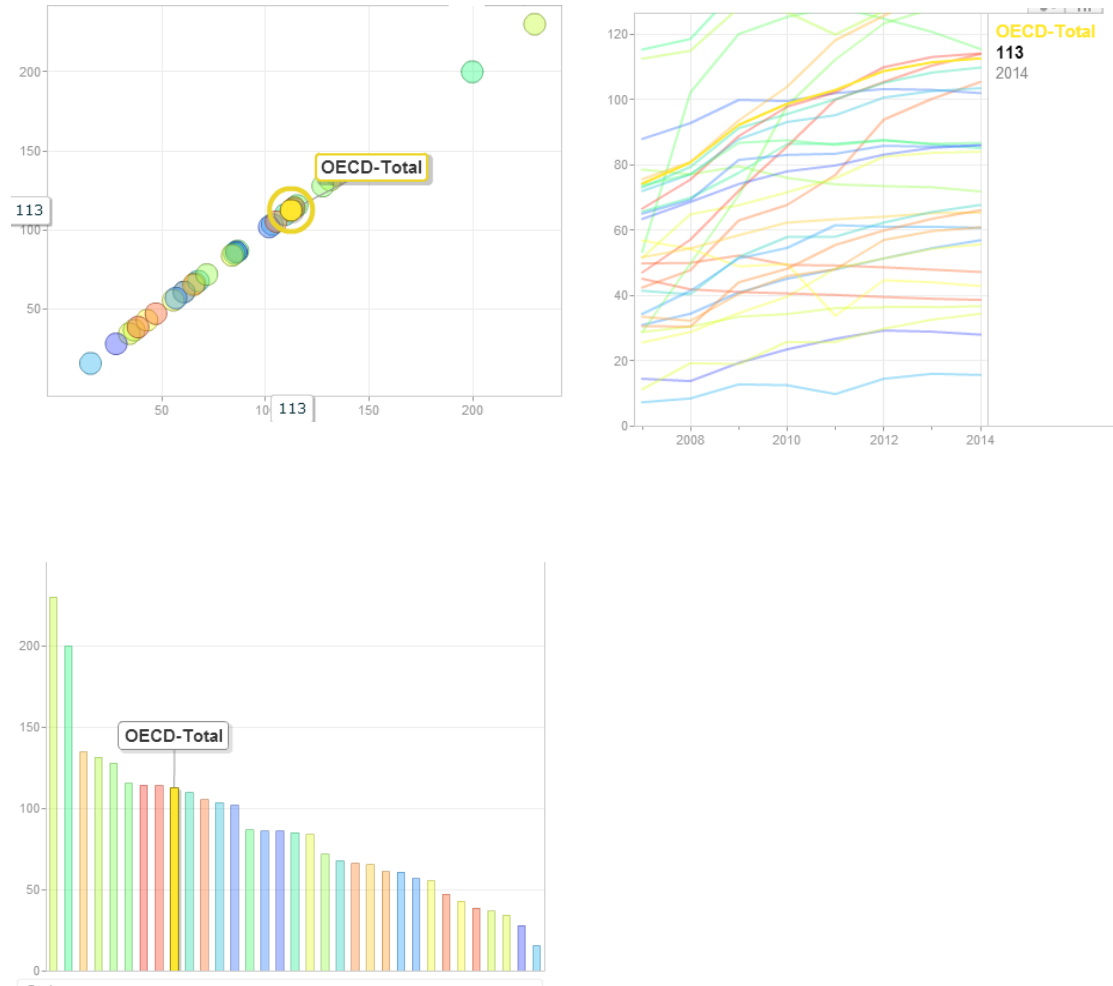


Image source: The Economist Dec 31st 2014

(<http://www.economist.com/blogs/graphicdetail/2014/12/european-economy-guide>)

Figure 4. Total debt for OECD countries

Total debt for OECD countries was at 74.2% of total OECD GDP in 2007, but it is now growing to 112.5% in 2014 (estimated). Individual countries within the OECD ranged in 2012 from a low of 14.5% of debt to GDP in Estonia to 224.3% in Japan.



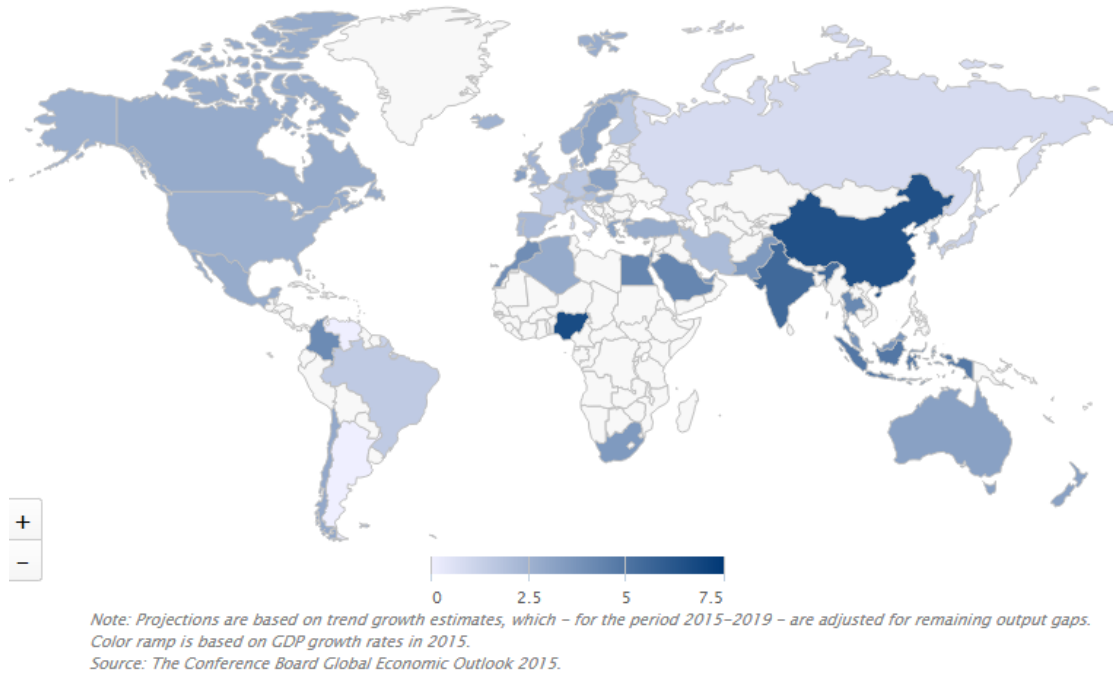
Public Debt as a % of GDP in OECD Countries, 2007-2014

Information on data for Israel <http://oe.cd/israel-disclaimer>

Image: <https://www.gfmag.com/global-data/economic-data/public-debt-percentage-gdp>

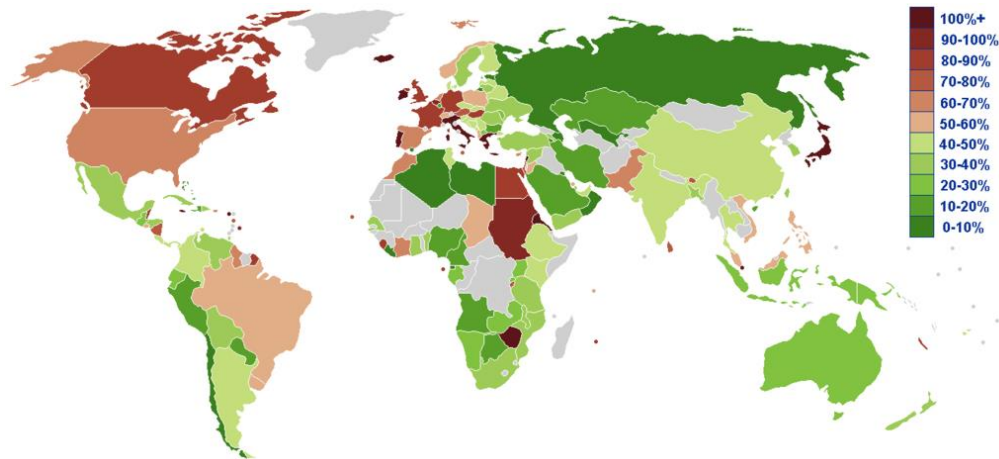
Figure 5. The forecasts of the Global GDP Growth Rates

Global Outlook for Gross Domestic Product Growth rates, 2014–2025 close



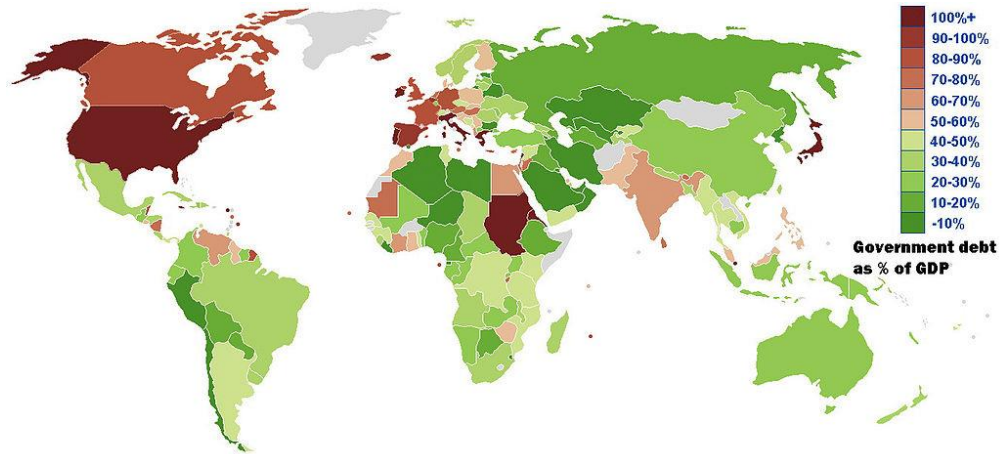
Source: <https://www.conference-board.org/data/globaloutlook/>

Figure 6. Public debt as a percent of GDP by CIA



Source: Wikipedia (http://en.wikipedia.org/wiki/List_of_countries_by_public_debt)

Figure 7. Total (gross) government debt as a percent of GDP by IMF



Source: Wikipedia (http://en.wikipedia.org/wiki/List_of_countries_by_public_debt)

APPENDIX 4

Estimates made by the World Bank and others indicated an additional cost of around US\$40–70 billion a year from 2000 to 2015 (Devarajan, Miller, and Swanson 2002).

Net Official Development Assistance (ODA) as percentage of Organization for Economic Cooperation and Development (OECD) and Development Assistance Committee (DAC) donors' gross national product (targets of 0.7% in total and 0.15 % for LDCs) originally.

According to <http://www.unmillenniumproject.org/documents/MainReportChapter17-lowres.pdf>, p.252,

“This first deadline passed. Having fallen from 0.51 percent as a share of donor GNP in 1960 to 0.33 percent in 1970, ODA reached 0.35 percent in 1980. By 1990 ODA was at 0.34 percent and then fell to 0.23 percent in 2002, the same year the 0.7 target was reconfirmed by all countries in the Monterrey Consensus (OECD 2004d).

So far, only five countries have met or surpassed the 0.7 target”