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FEEM Sustainability Index 2013 Preview

By Fabio Eboli

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FEEM SUSTAINABILITY INDEX 2013 PREVIEW

By Fabio Eboli*

The new version of the FEEM SI index will be released on November 12th 2013 during a **dedicated event**: "**Methodologies and indicators for green growth measurement**", where distinguished speakers from the World Bank and from OECD will focus on the state of the art in **quantitative measurement of sustainability**, **connecting theoretical background, practical assessment and policy perspectives**. Live-streaming of the conference for an international audience can be requested in writing to **events@feem.it**.

Re3 is pleased to host an overview of the new version of FEEM SI 2013: new features, new graphs, and new results. For the definitive version of these graphs and results, head to feemsi.org on November 12th 2013!

FEEM SI at a glance

The FEEM Sustainability Index (FEEM SI) is an aggregate index that aims to assess **worldwide progress in well-being**. It provides projections of sustainability performances at the national and macro-regional scale up to the year 2030. It is an **aggregate index** comprised of 23 indicators related to economic, social and environmental dimensions.

Unlike other composite indices, **FEEM SI is forward looking**. FEEM SI enables **scenario analysis** based upon different assumptions of economic, social and environmental drivers, providing **ex-ante** insights on the effects that different **policies** could have on sustainability. Its versatility includes highlighting hidden **trade-offs** or **synergies** between drivers. FEEM SI's complex framework consists of four main methodological steps, described in Figure 1.

FEEM SI structure

FEEM SI covers the main three **traditional pillars of sustainable development** theory: economy, society and environment (Figure 2). For each of these dimensions, the FEEM SI structure incorporates a number of indicators organised within relevant topics.

The composition of the index is continuously updated according to the evolution of the debate on sustainable development and green growth. FEEM SI 2013 adds 4 indicators - "Corruption", "Information, Communication and Technology Access", "Waste Generation", and "Material Intensity" - to the set available in previous versions of the Index, bringing the total to 23 indicators.

Sustainability in 2013

The FEEM SI map, Figure 3, displays the degree of overall sustainability across the world in 2013. Advanced Economies show a generally higher level of sustainability, even though economic growth can negatively affect other pillars of sustainability, in particular environment.

World maps will be available at feemsi.org for 2013, 2020 and 2030 for aggregate as well as for single dimensions of sustainability.

A more detailed picture of sustainability can be derived by looking at the relative position of a country within international ranking. For instance, in 2013 North and Middle European countries lead the ranking, while the USA performs badly because its economic structure is especially carbon-intensive. Recent economic trends have affected sustainability: for instance, in spite of a lower GDP per capita, China is more sustainable than Greece.

The full ranking will be **available only on November 12, 2013** ... stay tuned !

Sustainability in 2030

The ability to project sustainability indicators over time is an exclusive feature of FEEM SI. This makes FEEM SI much more than a simple assessment tool,

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extending it as a real policy simulation environment. Overall, no dramatic variations occur over the next two decades in both FEEM SI ranking and values. The most notable differences concern *Rest of the World* and *Rest of Africa* (moving up in the ranking) and Turkey and South Africa (moving down), but with negligible changes in the FEEM SI value.

Sustainability trend 2013-2030

The graph on page 6 shows the trend 2013-2030 for relevant economic groups of countries: European Union, Developed Countries, BRIICS (Brasil-Russia-India-Indonesia-China-South Africa), Least Developed Countries. Environment deterioration connected to economic growth in the reference scenario will have a reverse effect on sustainability in each Macro-Region, offsetting potential improvement driven by economic and social development.

The same information will be available for all countries on feemsi.org and importantly, by playing with the X and Y axis, the web user will be able to interrogate different dimensions of sustainability to analyse their interactions and relationships. The Google Motion Charts will be **available only on November 12, 2013** ... stay tuned !

Policy scenarios

FEEM SI adds value as a useful tool for analysis of future states of the world: It enables comparison of sustainability performance driven by policy commitments. **Three different policy scenarios**, consistent with the achievement of a subset of **Sustainable Development Goals** (SDG), have been selected for the 2013 edition: a *Social Policy*, an *Environmental Policy*, a*Sustainable Development Policy* based on a comprehensive strategy covering all three dimensions of sustainability.

Figures 5-7 present the effects of each policy on all sustainability dimensions, FEEM SI and GDP per capita in 2030 for the world and other aggregates. It is worth noting that the larger the distance-to-target from the policy goals listed below, the higher the benefit from policy.

Worldwide

Social Policy

Subsidies on **Education** and **Public Health** in Least Developed Countries

According to UN Sustainable Development Solutions Network Sustainable Development Goals (UN SDSN SDG n. 3 and 5), the Least Developed Countries should increase their expenditure in education and public health at least up to 5% and 3% of GDP, respectively, to increase their own social sustainability.

Environmental Policy

Climate Mitigation Policy in both Developed Countries and BRIICS

Even though no agreed target on mitigation of climate change emissions is universally recognized or under discussion at 2030, we simulate a 40% reduction of Carbon Dioxide with respect to 1990 levels through a fully flexible international carbon market.

Increase by 20% **Water use efficiency** in agriculture and industrial sectors in all Countries

A general increase in water efficiency, mainly but not exclusively in agriculture, is proposed worldwide to cope with the increasing water scarcity.

Sustainable Development Policy

Social Policy

Environmental Policy

Subsidies on R&D in Developed Countries and technological transfer in agriculture and industrial sectors in Least Developed Countries

This scenario proposes a joint implementation of both social and environmental policy, as well as an increase of R&D towards 3% of GDP as a minimum target for Developed Countries and a consistent benefit through technology transfer to Least Developed Countries and BRIICS.

Both social and environmental policies show possible trade-offs because they increase their own dimensions and affect negatively

with their own cost the economic pillar and GDP. Nevertheless, overall impact on sustainability is positive: Greater in case of environmental policy that implies larger economic costs. Comprehensive sustainable development policy covering all dimensions implies a further increase in sustainability, showing a higher potential to get closer to the SDG strategy.

Macro-regions

Moving from the world scale to smaller aggregates, heterogeneous effects emerge from each policy on sustainability dimensions. There are two drivers explaining those differences.

On the one hand, the **direct effect** given by the policy target that has an impact only in those countries where the policy is actually implemented. On the other hand, the **indirect effect** plays a role according to the macro-economic behaviour that can lead to changes in both economic and related social and environmental variables. These are a consequence of the policy itself and partially increase or offset the direct effect accordingly.

Overall, **social policy** positively affects Least Developed Countries, increasing effort on Education and Health.

Conversely, **environmental policy** shows a huge increase in both environmental pillar and overall sustainability in Developed Countries and BRIICS and a decrease in GDP. BRIICS suffer the highest economic burden as they have lower marginal abatement costs.

The **sustainable development policy** affects both BRIICS and Least Developed Countries positively as they receive benefits from technological transfer from Developed Countries without suffering related costs, see Figure 8.

Figures

Figure 1 – Four methodological steps

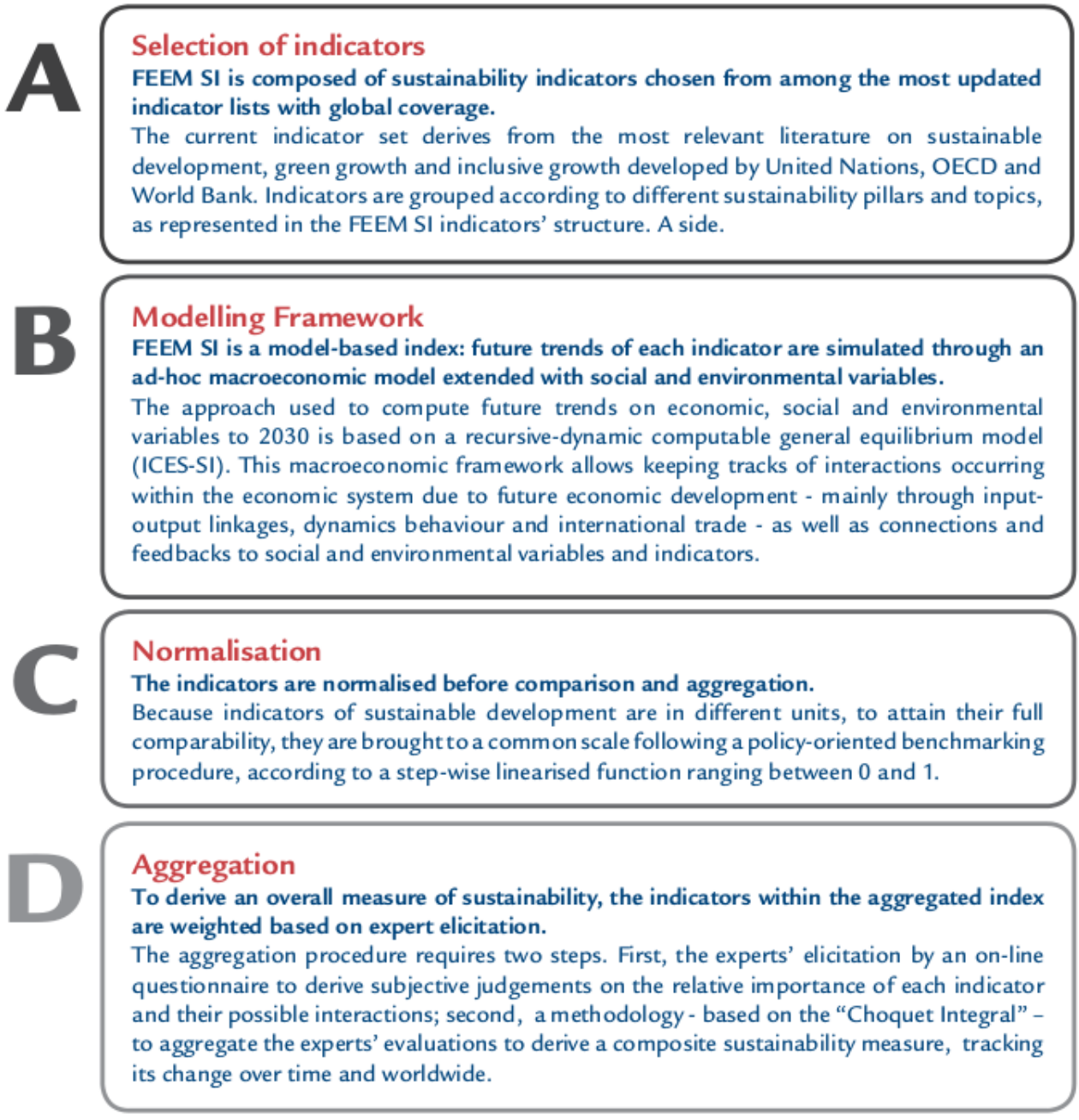

Figure 2 – FEEM SI structure

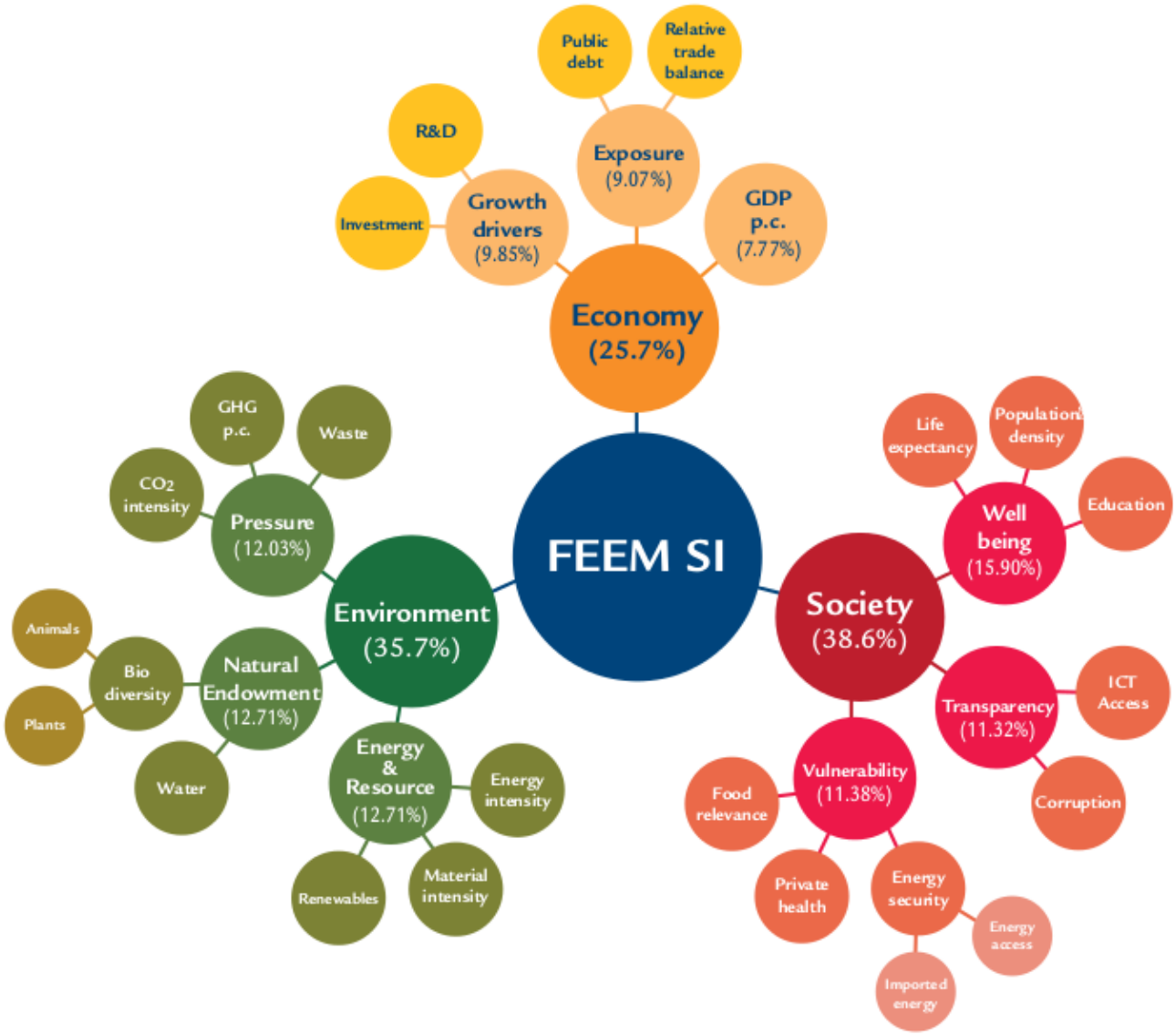

Figure 3 - FEEM SI map displaying the degree of overall sustainability across the world in 2013

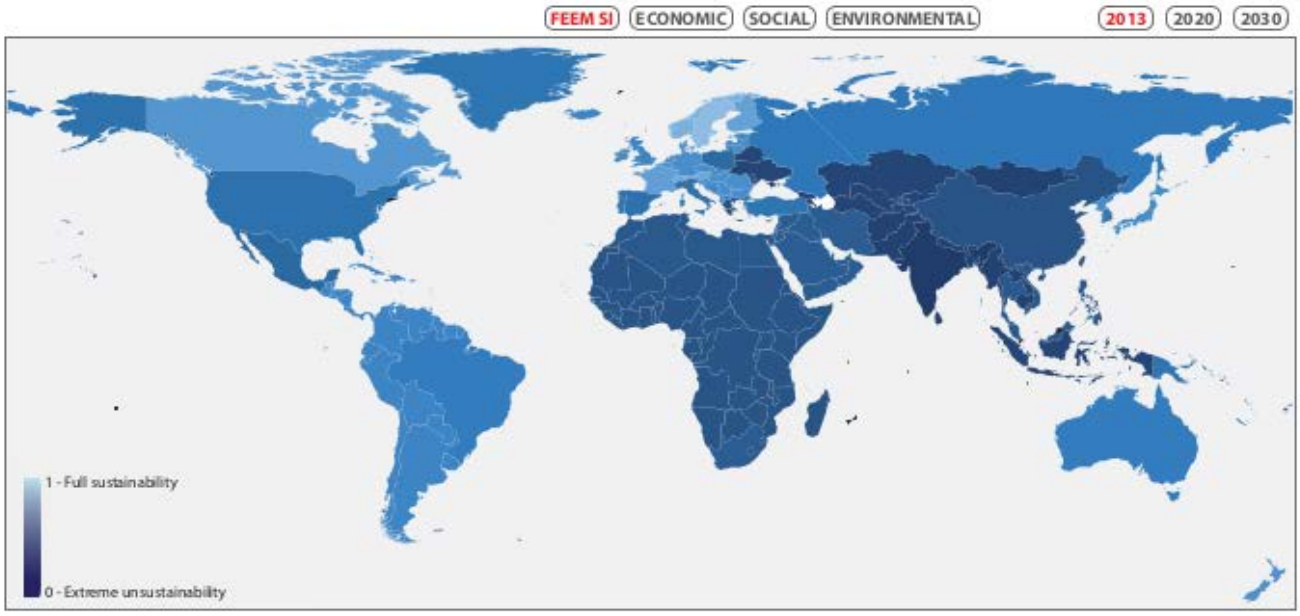

Figure 4 - 2013-2030 Sustainability trend for relevant economic groups of countries

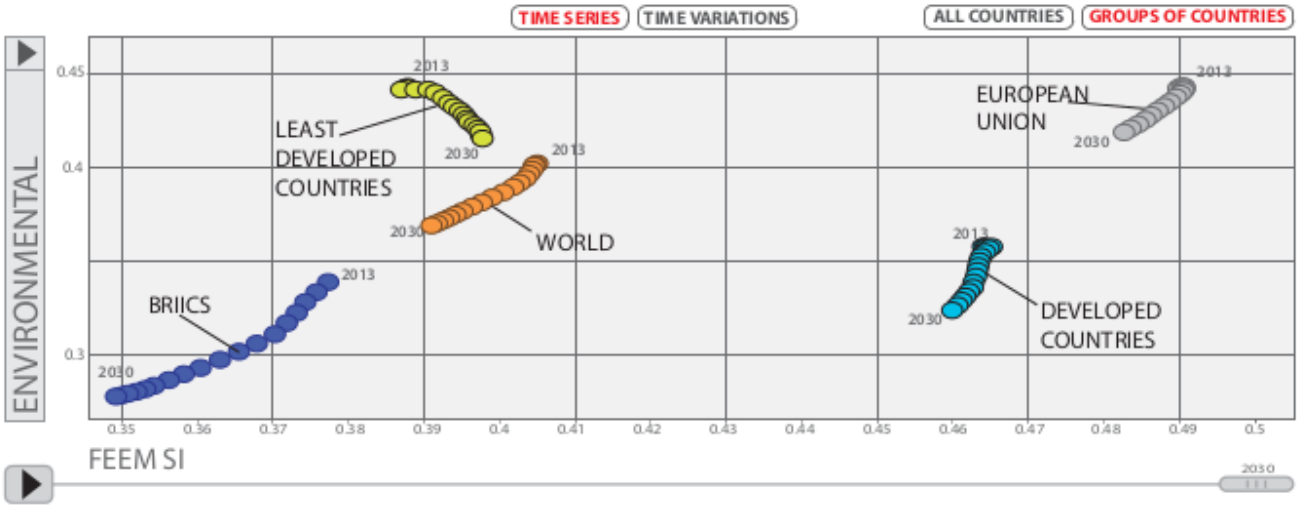

Figure 5 – Social Policy

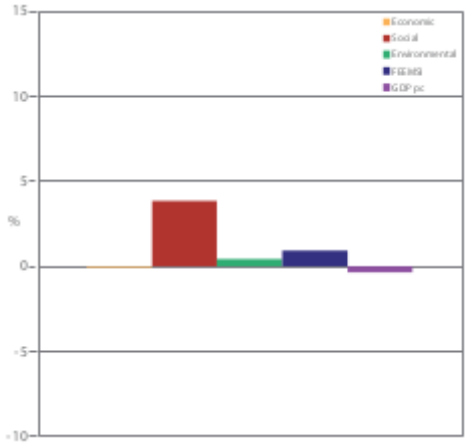

Figure 6 - Climate Mitigation Policy

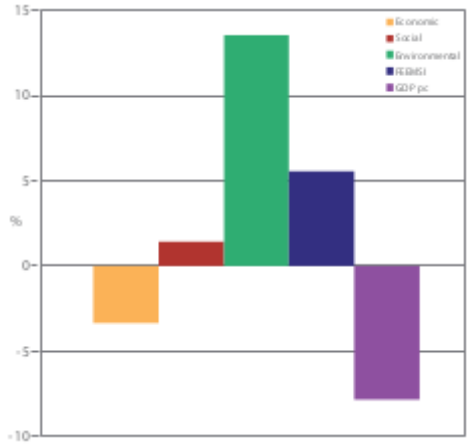

Figure 7 - Sustainable Development Policy

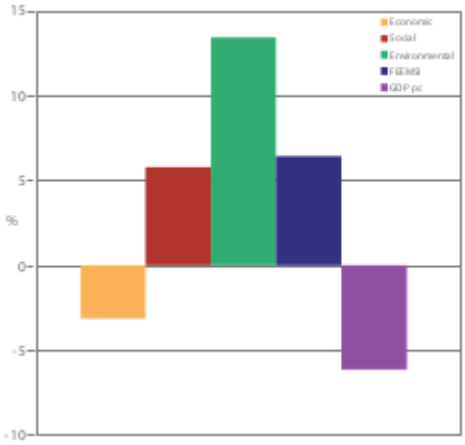

Figure 8 – Macro-regions - sustainable development policy affects both BRIICS and Least Developed Countries positively as they receive benefits from technological transfer from Developed Countries without suffering related costs