INTRODUCTION

Inclusive wealth: an overview

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Context

For more than half a century we have appraised our progress as nations on the basis of how much we produce, consume, and invest; we have measured that progress in U.S. dollars and aggregated into an easy-to-compare metric: gross domestic product (GDP). We have been working under the implicit underlying assumption that the resource base upon which this growth depends is infinite. But what if it is not – what if this growth is not sustainable? And further, what if the reality of human well-being is not being accurately reflected in our computations of GDP; or if our GDP growth rates are not resulting in improvements in human well-being?

The dialogue surrounding what is to become the post-2015 global development agenda has recognized the shortcomings of the present development agenda, as well as the limitations inherent in using GDP as a yardstick for progress (UNITED NATIONS 2012, UNU-IHDP AND UNEP 2012). The outcome document from the 2012 global summit, the Rio+20 United Nations Conference on Sustainable Development, calls for a paradigm shift in the way we view development and growth, and for a set of Sustainable Development Goals (SDGs) that reflect that paradigm shift. At the same time, there is growing recognition that conventional

national accounting frameworks have overlooked some of the most important assets a country possesses, treating them as peripheral, rather than central to human well-being.

We require a more comprehensive framework for measuring our future progress – not necessarily to replace, but rather complement, GDP – and to reveal the full extent of a country's assets, or productive base. The shift toward sustainability as a core development pillar demands an index that can quantify, measure, and track sustainability. The concept of inclusive wealth, and an inclusive wealth indicator, is a response to these deliberations and demand.

The Inclusive Wealth Report (IWR) is a biennial effort to evaluate the capacities of nations around the world to improve their citizens' well-being, and do so sustainably for the benefit of present and future generations. The report provides a more comprehensive and accurate measure of human wealth, development, and progress. The IWR validates our suspicions that GDP is an inadequate measure for assessing long-term prosperity, and reveals education, health, and the environment as investments that will truly unleash the potential of young and interconnected populations around the world for development. The Inclusive Wealth Index (IW) will be crucial to measuring progress toward the Sustainable Development Goals, and in the planning and evaluation of sustainable development as a policy paradigm.

Inclusive Wealth Index: beyond GDP and HDI

Inclusive Wealth is a tool, rather than a prescription. In the first IWR in 2012, we demonstrated that the principal pillars of the wealth of nations, human capital and natural capital, have remained largely hidden to policy-makers due to the limitations of traditional economic indices. It was discovered that the biggest returns were coming from factors not accounted by our systems of national accounts, nor, by extension, reflected in GDP.

GDP is a useful and practical tool for measuring economic production, but it does not impart any information on the state of the resource base upon which production relies. The 2010 Report of the French Government's Commission on Measurement of Economic Performance and Social Progress, also known as the Stiglitz-Sen-Fitoussi Commission, pointed to a number of ways in which nations were "mis-measuring" development through using GDP (STIGLITZ ET AL. 2010). These range from measurement errors and exclusion of key variables, to incomplete and misleading data. The commission echoed the warnings of Simon Kuznets – the father of GDP – of using GDP to measure societal progress (KUZNETS 1934).

The underlying framework used to compute GDP are the systems of national accounts. These national accounts have in recent years made some progress toward capturing a broader picture of the economic system, in particular by extending accounting to include the environmental system (see SEEA 2013). However, the accounts measured are still flow accounts – they measure only financial and material flows over a given time period – and thus do not reflect the sustainability dimensions of the economy. It is for this reason that recent attempts to internalize environmental externalities into national accounts, such as Green GDP, still fall short of providing an indicator to understand and track sustainability.

Another effort, the Human Development Index (HDI), was created in the 1990's as an initiative to provide an alternative to GDP in measuring human development progress in terms of life expectancy, education, and income (UNITED NATIONS DEVELOPMENT PROGRAMME 1990-2014). Although certainly illuminating, HDI still has significant – in sustainability terms – shortcomings. A primary drawback of HDI is its inability to adequately incorporate the ecological dimensions of sustainable development, and that it does not integrate social goods in capital accounts to complement GDP.

"… a better way to size up wealth"
– *The Economist*

The IW does not reject GDP. It acknowledges GDP's practicality for tracking efficiency of resource use for production, and for providing an overview of interdependencies among economic sectors held within the system of national accounts. Neither does the IW aim to modify GDP to accommodate missing elements, as Green GDP initiatives attempt. The IW starts from the premise that all development is conditional on the existence of several key assets, and that the total value of these assets should not be allowed to decline if human well-being is to be furthered sustainably.

The inclusive wealth framework takes a different approach to that of earlier efforts to capture a broader sense of human well-being and progress. Inclusive wealth directs its focus not on the constituents of well-being – measuring as does the HDI specific outcomes that reflect well-being – but rather the determinants of well-being, the set of "ingredients" necessary for nations to bring about those outcomes. These determinants can be found in several pools of national capital assets, or the productive base of economies.

Inclusive wealth and the post–2015 Sustainable Development Goals:

The outcome document of the Rio+20 UN Conference on Sustainable Development, The Future We Want, set out to establish a broader development agenda for the Millennium Development Goals (MDGs) after their evaluation in 2015 (UNITED NATIONS 2012). The international policy dialogue on the Sustainable Development Goals (SDGs) that followed is clear on the need for long-term planning to ensure achievements are not merely temporary, but strive to improve the lives of both present and future generations. The SDGs also take sustainable development from the environmental realm to include social and economic aspects. In doing so, the SDGs offer a unique and much-needed catalyst to converge economic aspirations with the social and environmental goals, and not consider them independently, as is currently the case.

"... if governments could agree to use the IWI as part of their overall economic accounting, it would be a substantial step towards true sustainable development."

– *The Huffington Post*

Sustainable development will be about transformative shifts (UNITED NATIONS 2013), and should include, according to an Open Working Group charged with developing the draft goals, the following arenas: poverty alleviation, food security, inclusive and quality education, gender equality, water and sanitation, sustainable energy for all, inclusive and sustainable economic growth for all, decent work, innovation, inclusive and sustainable industrialization, reduced inequality, inclusive human settlements, sustainable consumption and production, sustainable use of oceans and terrestrial ecosystems, and inclusive societies and institutions (UNITED NATIONS 2013).

The Open Working Group of the SDGs has rightly identified key issues and priorities to guide nations' and the global community's sustainable development agenda over the coming decade. The next step will be to develop a set of indicators for each of the goals and targets included in the final ratified list. In doing so, however, they must keep in mind what the predecessors of the SDGs – the MDGs – did not: that indicators should capture the interdependencies among various goals. That is, indicators must provide information pertaining to trade-offs and synergies among the goals in an integrated and holistic manner. This will allow policy-makers to understand the trade-offs and knock-on effects of prioritizing some goals over others, and the areas in which synergies can be leveraged to achieve a multiplicity of positive outcomes across several goals.

The SDGs call for "measurements of progress on sustainable development that complement GDP". The W might offer such a

tool. The IW helps countries measure sustainable development within the framework of growth and prosperity, and will facilitate integration of the SDGs into the rationale of national economic growth strategies.

The IW premises development on opportunity. The underlying axiom of the inclusive wealth concept is simple and elegant: changes in the overall value of all assets in a country over time must be positive if the economy is to be considered on a sustainable trajectory (see Annex 1 for a description of the model and the underlying prepositions and theorems). The value of the change in each asset stock is computed using the social price – commonly called by economists the shadow price – of each asset, multiplied by the change in the physical stock of that particular asset. These prices in effect reflect the weighting preference of individuals across the various capital assets.

The IWR 2012

The Inclusive Wealth Index was launched with the first IWR at Rio+20 in 2012, and represented the first attempt by the international scientific and policy communities to develop a framework for quantifying and tracking sustainable development, inclusive of produced, human, and natural capital. It drew upon two decades of data for 20 countries covering three types of capital to quantify and demonstrate the impact and returns of investing in them. The report, subtitled Measuring progress toward sustainability, focused on natural wealth, and offered valuable insights for development policy. The report was experimental in nature but, as Time Magazine noted, was the first serious effort to measure the true total wealth of nations.

The results from the IWR 2012 were both promising and sobering. Promising was that 19 of the 20 countries evaluated experienced positive changes in overall wealth. Still, after factoring in population, inclusive wealth growth rates per capita level turned negative for five countries. It was clear that population growth in these five countries had outpaced growth of inclusive wealth, highlighting the oft underplayed role of population growth in determining the sustainability trajectory of countries.

The sobering factor that emerged from the IWR 2012 was the status of natural capital. The IWR found that 19 of 20 countries were depleting natural capital while failing to adequately invest in rebuilding this category, despite evidence that returns on investment in natural capital far outweighed investing in produced capital – infrastructure, buildings, roads, etc. – for a majority of countries. Although 14 out of the 20 countries witnessed positive per capita growth rates on their overall asset base, growth rates

were marginal and could easily turn negative should declines in natural capital continue apace. Moreover, the costs of natural capital declines in the IWR 2012 were conservative estimates; actual growth rates might indeed have become negative had the IWR 2012 used less cautious estimates. These results reinforced our contention that the prevailing understanding of economic development must change to meet the needs of the 21st Century.

The IWR 2014: what is new

The IWR 2014 has been expanded from 20 to 140 countries, and the time horizon has been updated to include data from 2009 and 2010 in addition to the original 1990 to 2008 periods. While the IWR 2012 included a special focus on natural capital, the IWR 2014 does the same for human capital.

Spending on human capital has traditionally been considered as expenditure in core national accounts. The IWR 2014 makes a powerful case for treating education and other spending in human capital as investments, rather than expenditures. Education has long been considered a social good, and one that is crucial for future growth; however the IWR 2014 demonstrates it is also an engine of wealth today, and puts numbers to this value. In increasingly knowledge-based economies, education's role as driver of production has become more important than ever. That role is two-pronged: education is positively correlated to produced capital, as well as enhancing opportunity, which is at the core of human well-being.

"... this impressive research project ... is the first serious attempt to measure the total wealth of the planet's richest countries."
– *TIME*

The two main components of human capital are education and health. However, while health is a key component of human capital, we have left it out of the main human capital wealth accounts as we did for the IWR 2012. This was done for a number of reasons: First, because of the relatively high value of health capital, it dominates and skews overall inclusive wealth figures. While we are convinced that health capital is indeed valuable, the methodology used for computing health values is still under debate; until there is consensus among health economists on these methodologies, it would be inappropriate to integrate as such into overall wealth accounts.

We have, however, included in the IWR 2014 a chapter in Part II which delves into the subject, providing a detailed analysis of health capital and the challenges and opportunities it poses for the national accounts and the computation of inclusive wealth. Sample coverage for a selected number of countries is represented in Part II of this report for health capital. Our goal

is to integrate health capital in the 2016 report, given continuing progress on methodologies and database construction on health.

The education component in the main inclusive wealth accounts is unchanged in 2014. This is due to a lack of available data necessary to undertake a more detailed analysis as prescribed in the chapters addressing education in Part II of the report. However, the education wealth accounts have been expanded to account for new methodologies, and in Part II calculated for a selected number of countries in which necessary data was available. The lessons learned from this exposition will help guide in the revision and updating of education accounts for the broader set of countries for the IWR 2016.

The natural capital wealth accounts have been revised with new estimates for forest accounts, which included improved estimates for forest physical accounts and updated values for non-timber forest product goods and services taken from The Economics of Ecosystems and Biodiversity (TEEB) and Ecosystem Service Valuation Database (VAN DER PLOEG AND DE GROOT 2014). In addition, Part III discusses recent advances in using new typologies for forest accounts, with special attention paid to the challenges and opportunities involved in using social prices from economic valuation methods for ecosystem services.

Total factor productivity (TFP) was treated as a residual in the IWR 2012. The estimates were taken from the Total Economy Database (CONFERENCE BOARD 2012). In the IWR 2014, TFP is still treated as a residual, but is now generated by including natural capital as an explicit factor input to the production process. This approach allows us to extract directly the contribution of natural capital toward production, and not have it be reflected implicitly in the TFP, as was the case in 2012. We were therefore able to isolate to a closer approximation the real role technological innovation and creativity played in production, as well as other implicit capital types not yet accounted in building the inclusive wealth of the country.

The final addition for 2014 is policy. We present some first attempts at interpreting the findings of the IWR 2014 into implications for national and intergovernmental policy-makers. The report also takes a first stab at using scenario analysis for specific areas, applying inclusive wealth methodology and results to guide policy-making at the project level. The inclusive wealth framework allows using a social cost-benefit approach to project design and implementation (DASGUPTA ET AL. 1972). The first attempt focuses on produced capital, but the lessons learned can be easily transferable to the other capitals.

Audience and structure of the IWR 2014

The primary audience of the Inclusive Wealth Report 2014 will be researchers and policy-makers. The inclusion of environmental damage in the accounts – such as damages caused by global environmental and climate change – can be useful in determining transnational compensations, and as a guide for international negotiations on trans-boundary assets.

The report will also be useful for national economic planning agencies when considering macroeconomic fiscal policies. Changes in the various capital assets and their contributions toward inclusive wealth can provide key information as to where future investments should be targeted to generate optimal returns for increasing the overall productive base of a country.

The IWR is also targeted toward the research community. The 2014 edition identifies and elaborates on a large number of areas within the framework still in need of theoretical refinement and empirical data. For instance, the IWR 2014 does not address the issue of inequality within and among nations; yet the significance of wealth as a common denominator for measuring inequalities is becoming more evident, as recently demonstrated by Thomas Piketty in Capital in the 21st Century (PIKETTY 2014). Using inclusive wealth rather than income alone can provide a more complete picture of inequality in contemporary societies across the world.

The IWR 2014 is presented in three parts. Part I comprises two chapters. Chapter 1 presents the empirical computations of inclusive wealth for 140 countries over the period of 1990 to 2010. Particular attention is paid to the changes in inclusive wealth, and respective changes across human, natural, and produced capital. Chapter 1 also compares IWR trends with those of GDP and HDI. Importantly, Chapter 1 also provides an analysis of per capita trends, demonstrating the role population growth plays in sustainability.

Chapter 2 provides basic policy guidance on investment strategies to improve the inclusive wealth of a country. The chapter offers some initial ideas on how the IWR can be used to address typical policy issues such as energy or agricultural policy. The chapter also discusses some of the pitfalls of present health investment policies, and suggests gaps that the IWR might address. The chapter concludes with suggestions on how to revise national accounts to include wealth accounts.

Part II of the report provides a detailed analysis of human capital wealth accounts. Chapter 3 and 4 offer in-depth reviews as well as recommendations on methodologies for generating education wealth accounts, eventually suggesting a specific approach (the lifetime income approach) to measure human capital, which

uses information on gender, demography, and age, among other categories, to compute the contribution of education to sustainable development.

Chapter 5 focuses on the theoretical model for computing health wealth accounts. The chapter gives insights into the contribution of health to human well-being, and the ways in which health is valued as a capital asset. There is considerable controversy involved in using valuation methods to value human health, some of which are discussed in the chapter. The authors go on to suggest using the Value of a Statistical Life (VSL) for health wealth accounts, and provide some initial estimates for a small number of selected countries.

Part III of the report contains three chapters. Chapters 6 and 7 cover advances made in computing natural capital, while Chapter 8 describes how inclusive wealth can be used for project evaluation using scenario analysis. Chapter 6 focuses especially on forest accounts, and explains improvements in calculations based on updated values for non-timber forest goods and services. These values were compiled from The Economics of Ecosystems and Biodiversity (TEEB) and Ecosystem Service Valuation Database (VAN DER PLOEG AND DE GROOT 2014). Chapter 6 also recommends further research on generating a more complete computation of ecosystem services provided by forests, particularly with regard to carbon sequestration. It is a component that might be useful in the Reducing Emissions from Deforestation and Degradation (REDD) initiative. Countries might, for instance, use the marginal contribution to inclusive wealth from a unit of forest maintained as a price for maintaining the forest for carbon sequestration. Although the wealth accounts are still experimental, the potential of using the inclusive wealth accounts for this purpose is promising.

Chapter 7 discusses several contentious issues involved in developing valuation estimates for ecosystem services, including methodologies for assuming benefit transfer across specific areas, or scaling up values to generate national-level figures. The final chapter of Part III provides an illustrative example for using the inclusive wealth framework in project evaluation. The authors describe a model whereby a social cost-benefit analysis is computed for a project relating to investment in produced capital. The analysis makes an important contribution to existing project evaluation techniques by explicitly addressing the inter-linkages that occur across the various capital stocks. The chapter offers two case study examples, focusing on how infrastructure investments impact natural capital and health capital, respectively. Although the model looks retroactively at past projects, it offers insights into use for future scenario

building that can inform investment decisions, in particular investments in produced capital.

The reader is encouraged to review the data and technical notes annexed at the end of the report for a more detailed discussion of the specific methods used in the IWR 2014. A brief description of the inclusive wealth framework is provided as well, giving those unfamiliar with inclusive wealth an understanding of the concepts and definitions that make up the inclusive wealth theorem for sustainability.