

# **Natural Resource and Human Capital as Capital Services and its Contribution to Sustainable Development and Productivity**

*Ariel Alberto Coremberg (ARKLEMS+LAND)*

Paper Abstract:

Commodity prices boom during the first decade of 21st century impact on Natural Resource Dependent Economies by a significant consumption and GDP growth. However, present terms of trade reversion cast several doubts on the sustainability of their prosperity. Domestic Savings, human capital formation, productivity and management of natural resource abundance during the boom are key variables to sustain future economic growth in case of terms of trade reversion. But Growth Accounting and Balance Sheet Vulnerability analysis does not usually include Natural Capital contribution to growth. The economic literature in terms of Dutch Disease and Resource Curse was not based on common metrics. Stiglitz-Sen-Fitoussi (2009) report put issues about how to measure welfare, environmental and growth sustainability at the heart of the debate.

The System of National Accounts does not take into account some environmental assets and unproved resources and also human capital in the assets boundary that has important role in welfare and growth sustainability, mainly because of difficulties on empirical measures.

This paper propose a methodology to measure Natural and Human capital as wealth as capital services inputs in a symmetric and consistent approach with produced assets (KLEMS+N, capital, labor material, service and natural inputs). Main findings for oil and gas dependent group are reported. Evidence of Resource Curse is mixed. Despite high wealth effects during commodities prices boom, genuine savings did not increase, endangering their future growth sustainability. But GDP growth of oil and gas dependent countries accelerates during the recent commodities boom thanks of productivity dynamics, although these findings within the group were heterogeneous. Measured productivity of oil and gas dependent economies was negative biased if oil and gas inputs are excluded from growth accounting.

The new welfare and growth sustainable asset boundary proposed allowed inclusion of natural and human capital in the core of SNA responding questions of Stiglitz-Sen-Fitoussi about overconsumption, sustainability of development and productivity.