

Some challenges of ecosystem services measurement: data gaps and conceptual issues

Aldo Femia¹, Rosanna Mascolo², Alessio Capriolo²

Abstract

This contribution deals with the main challenges identified in the ongoing journey towards EU Regulation-compliant Ecosystem Services Accounts of the Italian Interinstitutional Working group on Ecosystem Accounts. These challenges are of conceptual and practical nature.

Conceptual challenges concern the very possibility to capture in figures the essence of Ecosystem Services (ES), and the heavy reliance on modelling and assumptions concerning the statistical representation of ES. It is argued that direct observation and therefore measurement of ES is in most cases intrinsically not possible, so that the proxy indicators used in ecosystem services accounting are often farther from the target concepts than it is usual in statistics. Estimates are in some cases based on non-tested assumptions; comparison between alternative models is not practiced as widely as would be advisable; important determinants are sometimes neglected. These factors severely limit the possibility to use some model results as significative representations of reality with the same level of confidence generally associated with other official statistics.

Practical challenges concern the availability of the expertise needed to assess the models, and possibly modify them, as well as the data required to run the models. Limiting factors are resources, alternative models' maturity, and engagement of experts from different fields. Even finding and adapting national sources, to replace Eurostat-provided defaults for the INCA tools/models, proves in many cases a difficult task.

All of these features give rise on the one hand to a “responsibility challenge”, consisting in the need to decide whether what is feasible passes the threshold of precision needed for official statistics, or more time is needed to set up appropriate calculations and data collections; on the other hand, to communication challenges, as it is necessary not to mislead the public with regard to the meaning and representativity of the proxy Ecosystem Services indicators.

At the same time, these challenges also represent an important opportunity for methodological and institutional advancement. Indeed, the process of implementing ecosystem accounts is fostering stronger interinstitutional cooperation and an increasing integration of ecological, statistical, and modelling expertise. From this perspective, the difficulties can be regarded as part of a natural consolidation process within a field that is still relatively new to official statistics.

Keywords:

Ecosystem services; modelling, INCA.

¹ Istat

² ISPRA