

2020

36th IARIW General Conference

Paper Prepared for the 36th IARIW General Conference, Oslo, Norway, August 24-28, 2020

Resource Rent in Norwegian Agriculture: Perspectives on Agricultural Ecosystem Services

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Resource rent is defined as additional income from utilizing a natural resource, remaining after input factors have received their remuneration, i.e. earnings beyond income normally earned by physical capital and human capital. The natural resource wealth of a country can be defined as the discounted stream of future resource rent from natural resources. International comparisons of national wealth by the World Bank have found that natural resource wealth in industrialized countries constitute an insignificant share of total national wealth, where human capital by far has the largest share. However, in Norway, energy resources, in particular petroleum, has contributed considerably to national wealth. Hence, over the last decades, Statistics Norway has calculated resource rent and natural resource wealth of Norwegian natural resources, based on data from National Accounts, for non-renewable natural resources; oil, gas and minerals, and renewable natural resource sectors; agriculture, forestry, aquaculture, fisheries and hydro power production.

Applying the resource rent approach to agriculture shows close to zero resource rent. However, the low value of agriculture may seem paradoxical in the perspective of the ecosystem services and collective goods related to agricultural production. Agriculture depends on biological diversity and ecosystem services, e.g. pollinators, and agricultural activities contribute to maintain the cultural landscape, ecosystem services, cultural heritage, and local rural communities, as well as future food security. Hence, agriculture has a higher value than expressed by the resource rent figures. Especially under climate risk there may be a larger value of maintaining the potential for agricultural production, as discussed in a recent official report on climate risk and the Norwegian economy. In this perspective, calculation of natural resource wealth based on economic data only may not capture the role of natural resources as basis for future agricultural production.

In this paper, we review the current method of calculating resource rent and natural resource wealth, give illustrations for Norway with time series for agriculture compared to resource rent in other natural resource sectors, present sensitivity analysis, discuss policy priorities over time, consider different methods for estimating land wealth, and take a forward-looking approach and discuss the need to develop new methods to represent the value of ecosystem services and future consumption possibilities. We apply the System of Environmental-Economic Accounting -

Experimental Ecosystem Accounting (SEEA-EEA), with a spatial approach to the extent and quality of ecosystems and value of ecosystem services. In order to assess the value of agriculture, as contribution to expected future national wealth, and its value for future food production, we will consider scenarios for expected values for food prices and costs, under different climate risk scenarios, based on scenarios from e.g. Food and Agriculture Organization (FAO). The purpose is to illustrate future values of agriculture in Norway, including the large areas of grazing land, in situations where food production may be based on self-sufficiency to a larger extent, and to illustrate the considerable uncertainty, suggesting multiple approaches to valuation.