Ecological Fiscal Transfers in Germany – from theory to possible outcomes

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This paper analyzes the theoretical foundations of ecological fiscal transfers, institutional settings for an implementation in Germany and discusses possible outcomes from an economic perspective.

Externalities are generally assumed to lead to a suboptimal level of supply of the relevant goods and services. In nature conservation, positive externalities are likely to occur due it its characteristics of a public good. Moreover, there are spatial spillovers of conservation benefits and ecosystem services provided by protected areas. Especially those services with a long spatial range such as biodiversity conservation, climate or water regulation benefit parties beyond those involved in conservation efforts. Costs and benefits are hence unequally distributed and lead to a suboptimal level of supply. Compensating mechanisms addressing nature conservation measures would increase social welfare.

In Germany, nature conservation is both a public function and a constitutional, national objective. The federal states (*Länder*) have a central role in financing and implementing nature conservation. Compensation of private land owners bearing land-use restrictions is already in place and subject to scientific studies. However, economic instruments compensating public actors for benefits of nature conservation are a relatively new field for both research and politics.

The intergovernmental fiscal transfer system (FTS) in Germany allocates budget between federal, state and municipal levels. Generally, all states should have the same budget per capita available for their public functions. But it has been shown that densely populated city states have above average fiscal needs per capita for cultural and social public functions, while sparsely populated states have a higher fiscal need per capita for infrastructure. These above average fiscal needs have already led to corresponding modifications of the FTS, designating a higher share of fiscal transfers for the most densely and most sparsely populated states. Comparable considerations also apply to ecological public functions such as nature conservation and ecosystem services provision. However, these have not yet been accounted for in the current FTS. For Germany, this paper will demonstrate that the expanse of designated protected areas and population density is negatively correlated and that sparsely populated states spend an above average share of their budget for ecological public functions. Integrating ecological indicators into the German FTS could be a measure to compensate for an above average share of the states' area for nature conservation.

Given the preferences of the states that have designated protected areas above average, it can be assumed that an additional, non-earmarked budget would at least partly be spent on nature conservation. Especially, if by the instrumental design protected areas become a source of income, those states with marginal cost below marginal benefit would be expected to increase the expanse of protected areas or invest in better quality of existing areas. Given that opportunity costs of conservation are relatively low in sparsely populated states the introduction of ecological fiscal transfers benefiting these states would lead to cost savings in nature conservation. An appropriate instrumental design can hence lead to overall efficiency gains. Interactions with other instruments would still have to be considered.