

3.1 Public sector size and country size in theory

3.1.1 *A simple model*

The argument that smaller countries have considerably higher public expenditure relative to GDP than larger countries due to diseconomies of scale is rather convincing at first. A lot of publicly provided goods exhibit high fixed costs and/or diseconomies of scale; in other words, the optimal scale of production is far beyond the number of inhabitants of small countries.³³ Think of a monetary system, a legal system or an army in Dominica, St. Lucia, Belize, Liechtenstein and Luxembourg, respectively.

Note that the definition of non-rival public goods implies diseconomies of scale.³⁴ Assume a lump-sum tax T and a set of public goods G provided by the government, and let N be the number of identical tax payers, then $T = G/N$. The higher N is, the lower per capita public expenditure and individual taxes are, under the assumption of a balanced budget and a fixed amount of G . If all publicly provided goods were non-rival, the optimal country size, irrespective of anything but economies of scale effects, would be of course infinite. As the degree of non-rivalness in publicly provided goods decreases, the effect of diseconomies of scale caused by the division of costs on many tax payers also decreases. A simple example will demonstrate the concept more explicitly.

All individuals in our simple economy are assumed to share the following CES utility function:

$$U(C, G) = C^\theta + G^\theta \quad (1)$$

³³ We stick to the term «diseconomies of scale» in the remainder. The widely used term «increasing returns to scale» does not convey the exact economic notion, since it normally refers to the production of a good and not to its provision. Additionally, it is generally used for variations of all factors of production. Starret (1977) investigates welfare variations in an economy with public goods, when the endowment of all natural resources is altered. This is not the meaning of «diseconomies of scale» in this paper. To be precise, non-rival and partly rival public goods are considered here to have cost functions with under-proportionally increasing provision costs in respect to the number of consumers, thus exhibiting falling per capita provision costs. The simple theoretical example in this section will entirely clarify the meaning.

³⁴ The case of non-rival public goods is, of course, a borderline case. Assuming this borderline case makes the theoretical discussion much easier, and one simply has to bear in mind that our results also hold true for partly rival public goods, but to a lesser extent. In other words, our theoretical results in this section are a special case in the sense that they are approached with a rising degree of publicness.