The Inequality Aversion in the Europe: The Absolute Equal-Sacrifice Approach

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One of the most important tasks for economists and decision makers lies in the estimation of the social welfare function of long run policy measures. Especially, when it comes to the unions of countries such as the EU. We provide unique estimates of a key component, μ (the elasticity of marginal utility of consumption), in the formulae for the social welfare function for thirty countries covered by the Eurostat database.

The estimation of social welfare function highly impacts the allocation of funds to various investment projects. The efficiency of such investment projects is usually evaluated through cost-benefit analysis (CBA). One of the key questions in CBA remains -- what is the future cost (or benefits) at present value. To answer this question, we need to determine the social discount rate (SDR), which states the rate at which society is willing to accept the inter-temporal trade-offs of consumption. Using other words, the higher the value of SDR, the lower the present value of costs and benefits that will occur at a later date.

The computation of the SDR follows the formula known as the Ramsey rule (Ramsey, 1928): $r = \rho + \mu\, g(C)$, where r is the social rate of return (usually called social discount rate), ρ is the pure rate of time preference (PRTP), $g(C)$ is the real growth rate of per capita consumption and μ is the elasticity of marginal utility of consumption -- the parameter of our interest in this study.

We use the revealed preference approach through acceptance of tax schedule to elicit the elasticity of marginal utility of consumption for thirty European countries. Specifically, we use the absolute equal-sacrifice approach. Given the this approach, the results are relevant only for the income taxpayers (Lambert & Naughton, 2009). We employ The European Union Statistics on Income and Living Conditions (EU--SILC) at household level covering the period 2004--2020 for all EU countries (except Croatia) together with Iceland, Norway, Switzerland and the UK.

Our central estimate of μ for covered countries equals to 1.42 with standard error of 0.007. With few exceptional cases, all estimates for countries in our sample exceed unity with the range of 1.2 to 1.90. Our results are in line with other empirical studies (Evans, 2005; Groom & Maddison, 2019). Given the formula for SDR, our results implicate the values of SDR between 3--6 percent for cost--benefit analysis of medium- and long-term projects in the European region.

In the literature we can find the SDR mostly between 1.5% and 5%. Recently, Drupp et al. (2018) report the results from the survey of 200 economists. Almost 90% of them consider the SDR of 1–3% appropriate for long–run projects, while only 9% recommend Nordhaus's value of 4.5% or higher. Similarly, Weitzman (2001) surveyed 50 leading economists resulting in the mean of SDR at 4.09% and std=3.07%.

In conclusion, our estimate are close to that of Evans (2005) who analyses μ for 20 OECD countries. His estimates (using the same approach as we employ) varies between 1.20 in Spain and 1.82 in Australia for high income population and between 1.00 in Ireland and 1.79 in Austria for low-income population. Importantly, the growing number of studies report $\mu > 1$ with the most cited values between 1.3 and 1.6 (Anthoff et al., 2009; Groom & Maddison Pr, 2019). As expected, the difference mainly comes from the employed approach. Finally, we conclude that our estimates fit well to the results of the mainstream literature.

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