
Offsetting Subsidies and Progressive Taxation

The following sections shed light on the distortive effect of various kinds of progressive taxation and infer the subsidy rate required to offset such distortions. The main purpose of the following analysis is threefold. First, under a pure proportional tax system the political implications of the argument in favor of subsidization is weak because it seems much more convenient to allow deductibility rather than to establish a large subsidization system. The following analysis, however, indicates that it does not suffice to allow for tax-deduction if we have to deal with income-tax progression. Second, in this chapter, we give a rationale or at least a normative justification for an interesting relationship which is plotted in Figures 8.1 and 8.2. In both figures, the Musgrave measure of progressivity¹ is plotted on the abscissae. The ordinate in Figure 8.1 shows the relative importance of higher-education subsidies relative to total public expenditure (data for 1990). Interestingly, the higher the progressivity, the higher is this relative value for almost all OECD countries. In Figure 8.2, some rates of subsidization are plotted. Unfortunately, due to a lack of data, only a few countries can be considered. Nevertheless, the plot provides evidence for a positive correlation between the rate of subsidization and the progressivity of income taxation. Third, we demonstrate that subsidies that offset existing tax distortions may be in league with the devil: by counteracting distortions, *new* inefficiencies may arise so that subsidies may fail to offset for tax distortions. By showing this, we moderate the optimistic view of subsidies found in some of the related literature, noted above. A consequence of our analysis is that international comparisons of education policy, as carried out e.g. by the (OECD, 2002, Ch. B), should not focus exclusively on the expenditure volume for educational institutions. Rather, they should take into account the comprehensive effect of public policy on human-capital formation, which clearly includes the tax system. Considering this, it seems

¹ The degree of progression is measured as “the ratio of the percentage change in income after tax to the percentage change in income before tax” (Musgrave and Thin, 1948, p. 507).

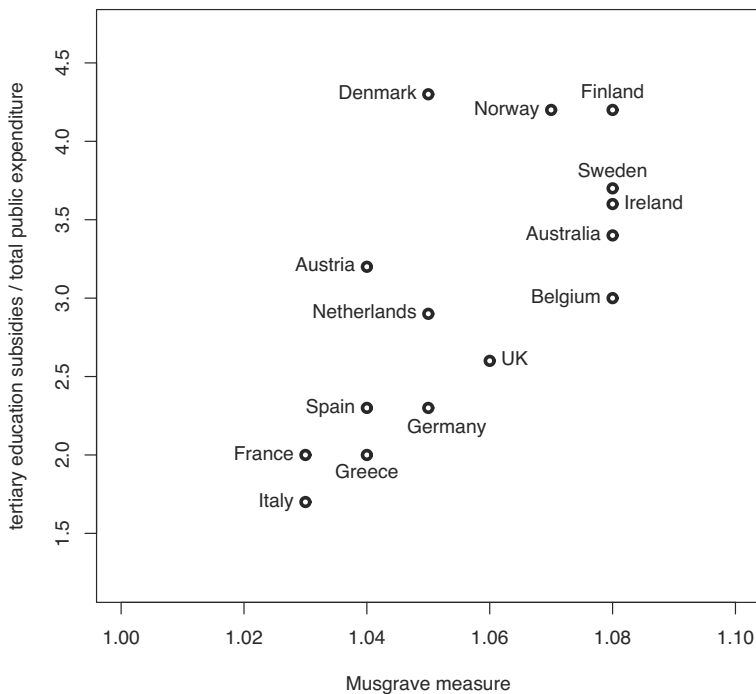


Fig. 8.1. Progressivity and Education Subsidies among OECD countries. Source: OECD (2002) and Norregaard (1990).

that differences among OECD countries are smaller than a first glance at subsidies might suggest.

Definition 8.1. According to Pollak (1980), we define a proportional tax rate after a tax-free threshold as an indirectly progressive tax, and a tax schedule with increasing marginal tax rates as a directly progressive tax.

Consider a complicated (comprehensive) income-tax schedule, which consists of a tax-free threshold and a higher marginal tax rate for high-income earners. Net lifetime earnings are equal to:

$$V_i^{E[d+ip]} = (1-t)h y_i - c(1-\rho) + t\kappa + \frac{(1+s_i)y_i(1-t-\varepsilon) + t\kappa}{1+r} + \aleph \quad (8.1)$$

and

$$V_i^{N[d+ip]} = y_i(1-t) + t\kappa + \frac{y_i(1-t) + t\kappa}{1+r} + \aleph. \quad (8.2)$$

Equating (8.1) and (8.2) and isolating y_i leads to the ECM of: