Political Economics of Higher Education Finance*

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Abstract

Human capital seems to be the most importend asset to ascertain prosperity for societies in a globalised world. Even more, as many countries do not possess natural resources. Nevertheless many public financed education assistance programms are very restrictive and do not exploit all talents, hence disregarding additional welfare to the whole community due to financial constraints. This paper analyses the inefficient allocation from a political point of view. It seems, that individual voting behavior over the subsidy parameter and the financing scheme can explain the normatively undesirable outcome.

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Higher education and especially education finance is discussed very vigorously. Not only since the onward globalisation, investment in human capital is one of the major aspects of public policy, as it might be the only resource a nation possesses. But financing a second or third qualification is a major problem for many households, which can not bear the costs of further schooling. Hence, state intervention seems to be necessary as otherwise a vast pool of poor but talented young individuals is excluded causing an efficiency loss for the entire society. This opens the normative debate on how optimally designing the structure of governmental grants to students and what size of financial assistance should be distributed. In contrast this paper focus a positive approach and analyses why the normative conclusions on this questions find merely poor attention looking at the implemented schemes. Hence a political economy model is assumed which, from our point of view, is the best way to get deep insights into the processes of creating this phenomenon.

We consider a continuum of individuals with decreasing absolut riskaversion. They merely differ in their intital endowments y^i with distribution function $f(y)$. In the first periode they can either work or study with cost E. In the second periode they work as high or low skilled, where the former receives w_H and the latter w_L. If studying, graduation might be successful with probability p, but with $(1-p)$ graduation fails and the wage w_L is obtained.

Additionally a government is introduced, levying taxes, which in turn are used to finance the education grants according to the respective scheem, taking into account a balanced budget. Thereby, following alternative systems are discussed:

- *pure loan scheem*

  No state intervention occurs. Every individual has to bear her own cost of education.

- *traditionally tax subsidy* Here, every individuals' endowments are taxed proportionally and result in a certain amount distributed to every student. The expected utility-levels for students and non-students look like

$$\begin{aligned} EU_i^S &= pu((1-t)y_i - (1-s)E + \delta w_H) + (1-p)u((1-t)y_i - (1-s)E + \delta w_L) \\ U_i^N &= u((1-t)y_i + (1+\delta)w_L), \end{aligned}$$

  where δ signifies the discount factor.

- *income contingent loans*

  That scheme constitutes that the cost for studying only have to be paid back by successfull graduates. The uncovered expenditures of all unsuccessful student are equalised by a general tax concerning all individuals.

$$EU_i^S = pu(y^i - E + (1-t)\delta w_H) + (1-p)u(y^i - (1-s)E + (1-t)\delta w_L)$$

- *graduate tax scheme*

  The last scheme under discussion designates only successfull students to repay the total amount of education costs in society.

$$EU_i^S = pu(y^i - (1-s)E + (1-t)\delta w_H) + (1-p)u(y^i - (1-s)E + \delta w_L)$$

The structure of the game is as follows. On the first stage individuals decide about the financing scheme, and on the second the favoured subsidy rate ist choosen. On the last stage individuals decide whether to study or not. This game is solved by backward induction.

Solution - Stage 3 The individuals decide whether to study or not by comparing the uncertain utility if studying with the safe pay-off if waiving higher education. Thereby they take into account the certain financing schemes with the respective subsidy rates as solved on stages one and two. These endogenous sizes of the two groups are crucial for the determination of the subsidy rates, because some schemes also include non-students by generating the tax income, and others do not.

Solution - Stage 2 This stage determines the size of the subsidy rate for every scheme by the median voter approach. It can be shown that the optimal rate under a traditional tax scheme exhibits the „ ends against the middle„ structure. The graduate tax system constitutes a safe pay-off where as the income contingent loan scheme ends in a strict positve subsidy rate but below the one necessary to establish a safe pay-off.

Solution - Stage 1 On this stage, individuals compare their utility-levels for the alternative schemes, already knowing the implemented subsidy rates. It turns out, that the individually favoured system depends on the initial endowment as well as on the riskaversion.

This work is still in progress and only shows the first part of the analysis. What can be expected is a detailed analysis of endogenous wages. Those are derived from a

production sector with a concave production function $Y = F(H, L)$, where H are high skilled and L low skilled workers. The wage corresponds to the respective marginal product and cross derivations are supposed to be positive. This leads to the result, that even non-students opt for a positiv tax rate although they do not participate dirctly through education grants.