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Tuition fees: User prices and private incentives

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ABSTRACT

This paper studies the aggregate and distributional implications of introducing tuition fees for public education services into a tax system with income and consumption taxes. The setup is a neoclassical growth model where agents differ in capital holdings. We show that the introduction of tuition fees (a) improves individual incentives to work and/or save and (b) can be both efficient and equitable. The focus is on the role of tuition fees as an extra price and how this affects private incentives.

1. Introduction

The 2008 world financial and economic crisis has brought into the spotlight a number of issues related to the reform of the public sector. In addition to the first obvious task, which is public debt sustainability, there are two other interrelated issues: how to improve the provision of public goods and services and how to reduce the social burden for this provision.[1] The latter, namely, the reduction of the social burden for the provision of public goods and services, has to do not only with the classic quest for the least distorting tax mix but also with the search for new sources of public revenue. User prices for excludable public goods and services can possibly play this role and, among a wide variety of such user prices, the most debated example is tuition fees for publicly provided education services.[2] A common objection to tuition fees is the view that they are “unjust”, in the sense that they tend to increase income inequality. But, is it really the case?

This paper studies the aggregate and distributional implications of tuition fees for publicly provided education services. Within a rather standard general equilibrium framework, we show that the introduction of tuition fees, modeled as user

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[1] See Sørensen (2016) for a recent survey of the economics of the public sector and the need for reforms.

[2] For examples and reviews of user prices for excludable public goods and services, like education, health, child care, elderly care, etc., see Cullis and Jones (1998, Chapter 12) and Hillman (2009, Chapter 3). Tuition fees for public education services are a popular example of user prices; see also Atkinson and Stiglitz (1980, chapter 16). See chapter 6 in the book of Friedman and Friedman (1980) for the history of private and public education system in the US. See Jacobs and van der Ploeg (2006), for European practice. See Barr (2012) for reforms of higher education finance, including tuition fees, in England. For the political economy of tuition fees and public education spending policy, see e.g. Merzyn and Ursprung (2005), Soares (2006), Haupt (2012), Kauder and Potrafke (2013) and Epple and Romano (1996, 2014).

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prices for publicly provided private education services, allows for the creation of a new market and this new market enhances individual incentives and opportunities. As a result, such tuition fees can, not only make everybody better off (i.e. they are Pareto efficient) but also reduce income inequality.

Our model is as follows. We use a rather standard neoclassical growth model with human capital. Individual human capital can be augmented by (among other things) publicly provided education services. These services are modeled as an excludable public good. Their provision requires public funds. We compare two different systems of public financing. According to the first system, public education services are provided "free" of charge, meaning that they are paid by general (income and consumption) taxes. According to the second system, there are tuition fees, in the form of user prices for publicly provided private education services. In the latter case, private agents' utility maximization problem gives the individual demand for those services as a negative function of the user price; this allows individuals to voluntarily choose the amount of public education services they want to use and hence the amount they wish to pay. Then, the user price, or the tuition fee, emerges as a consequence of this voluntary demand and the quantity made available by the government. As an extension, we also allow for a minimum uniform provision of the same education services, which is determined exogenously by the government, so, in this case, individuals choose how much to top up by paying fees.[3] To study distributional issues, we obviously need a model with heterogeneous agents. Following a long tradition in the literature on tax policy and social conflict that dates back to e.g. Judd (1985), we assume that households are divided into two distinct social groups, called capitalists and workers: while both groups can accumulate some type of human capital and provide labor services, only capitalists own the physical stock.[4] The model is solved numerically using common parameter values.

Our first result is about efficiency. When, other things equal, we compare an economy without user prices for publicly provided private education services to the same economy with such prices, the latter is always Pareto improving. In other words, with tuition fees, modeled as user prices, both social groups, capitalists and workers, gain in terms of income and welfare. This holds even when the government also makes available a minimum uniform provision financed by general taxes, so that, in this case, individuals have the choice to top up or opt out of using marketed education services; our solutions imply that they find it optimal to top up, and this applies especially to workers (see below for income distribution). Intuitively, the introduction of user prices for publicly provided education services, and in particular the creation of an extra market for this type of public service (see below for a further discussion), helps individuals to realize that, in order to afford its provision, they need higher income and hence they need to work more hours and/or save more. To put it differently, with user prices and the associated education choice, the cost of public education services is internalized at individual, as opposed to social level, and this, ceteris paribus, strengthens the individual incentive to work and/or save. It should be noticed that this is the opposite from an increase in taxes which, ceteris paribus, distorts incentives. Not surprisingly, the more private are the benefits from the provision of public education services, the higher are the efficiency gains from tuition fees.

Our second result is about distribution. Our results show that the income of workers rises by more than that of capitalists when we introduce user prices for publicly provided private education services and move to a more efficient economy. In other words, in equilibrium, the introduction of such prices proves to be a progressive policy. Loosely speaking, workers, or the poor, view tuition charges, and the associated work effort to pay for them, as an opportunity to climb the income ladder, while capitalists enjoy anyway an extra source of income coming from physical capital so that their incentive to invest in human capital is weaker. The rise in the gross income of workers more than offsets their higher user payments, so that their net income rises by more than the capitalists' and eventually long-term inequality falls in terms of net incomes. Therefore, in equilibrium, and in the case of user prices for publicly provided education services that augment private human capital, not only everybody gets better off (relative to the case without user prices), but also inequality, as measured by changes in net incomes, is reduced in equilibrium. When the government also makes available a minimum uniform provision financed by general taxes, other things equal, net income inequality falls, but this comes at the cost of making everybody worse off. This problem becomes more acute when there is only a minimum uniform provision and nobody has the choice to top up; in this case, inequality falls but at the cost of immiserasing everybody.

Before we carry on, it should be stressed that here we use a stylized general equilibrium model that allows us to make our main point boldly. Namely, to show that, to the extent that agents can afford to pay user charges, so that education choices are feasible, the introduction of user prices for publicly provided private education services can improve both efficiency and equity. Of course, we realize that when some agents cannot afford the payment of user charges, government intervention is needed to supplement the market mechanism and give everybody the opportunity of education. Actually, our results are consistent with this; as said above, if, for some reason, workers do not pay user charges, inequality rises without a minimum uniform provision financed by general taxes. Thus, in such cases, the government should intervene to ensure the provision of a minimal education system to everybody, especially to those with poor initial background (see e.g. Hillman and Jenker, 2004, and Cunha and Heckman, 2009). Nevertheless, we also showed that, in this case, there is a tradeoff between efficiency and equality, so social judgments have to be made. But our main argument for tuition fees (seen as a user price), still holds, even if some households are exempted from paying for schooling directly.

The rest of the paper is organized as follows. Section 2 compares our work to the literature. Section 3 presents the model and its main results. Extensions and robustness checks are in Section 4. Section 5 closes the paper. An Appendix provides algebraic details.

[3] The minimum or compulsory provision can be thought of as primary and secondary education, while the top up can be thought of as tertiary or higher education.

[4] See Lansing (2011) for a review of general equilibrium models with concentrated ownership of capital as a type of agent heterogeneity. According to empirical evidence by e.g. Heathcote et al. (2010), concentration in capital ownership is one of the key determinants of income inequality.