

9. PUBLIC FUNDING AND ENROLMENT INTO HIGHER EDUCATION¹

Gauthier Lanot, Rudolf Winter–Ebmer and Aniela Wirz

In most European countries higher education is highly subsidised by the public sector. What impact does this public funding have on the educational choices of students? The theory underlying this relationship is the classical human capital model, where an individual maximises his/her discounted stream of lifetime earnings net of the costs of education. The net costs or price of education refer to out-of-pocket costs like tuition fees and education material net of public subsidies. An individual will invest in schooling up to the point where the marginal cost of an additional year of schooling (foregone earnings plus net costs) is equal to the marginal benefit (the discounted stream of earnings attributable to another year in school, being a function of the individual's ability and time preference or discount rate).

Why is there any reason for public intervention concerning the private choice of education? In principle, three arguments can be made. The first is a public-good story: a better educated population fosters civic participation, a stable democracy and a richer cultural life. As these benefits accrue to all members of society, they can be considered a public good. The second argument relies on liquidity constraints. The optimal schooling choice is dependent on a capital market being accessible for all individuals. But since ability cannot be used as collateral, students from poorer backgrounds may not be able to borrow to invest in their own education. Public funding can then provide the necessary temporary liquidity by giving loans that the credit market cannot provide. This argument is certainly more relevant for higher education. Finally, a more educated population can generate social externalities through complementarities in production or

¹ Thanks to participants in the PURE user-oriented Lisbon seminar, especially Lord Richard Layard, for comments and to Klaus Stöger for research assistance. Our PURE partners contributed thankfully to filling the holes in the cross-country data set used in the work in progress that is briefly reviewed in this chapter. Financial support has been received from the European Commission under the TSER programme and from the Swiss Federal Office for Education and Science. The usual disclaimers apply.

consumption. These externalities – which are prominent in the new growth increasing returns literature – could arise, because people are more productive if they are around other clever people.

This chapter assesses the importance of the effect of public funding on private enrolment behaviour into higher education. Previous research has concentrated, on the one hand, on time-series evidence for some European countries, and on the other hand, on more detailed evaluations of grant programmes for the USA. If only time-series variation is available for funding and enrolment, no firm conclusions can be drawn, because there is a suspicion of trends in many of these variables. The US evidence seems to indicate that grants have a positive effect on enrolment (or, vice versa, a negative effect of tuition rates), with a higher effect on lower income groups. While enrolment into higher education appears to be quite sensitive to factors affecting either the marginal benefit or the marginal cost of additional schooling in cross-sections, explaining the evolution of enrolment rates over time proves to be even more complicated. Overall the evidence is that neither public funding of education, nor tuition fees policies can explain alone the evolution of aggregate enrolment rates (post-secondary education) over time.

A different strand of literature goes back one step and attempts to describe the relationship between teenager enrolment into higher education and parental income. After carefully disentangling permanent from transitory (current) income changes, many authors conclude that liquidity constraints are not important in explaining enrolment rates. However, this conclusion does not really strengthen the case against public funding of education. On the one hand, in-kind transfers like grants, subsidies or tuition costs might have very different impacts on spending behaviour as compared to money itself. On the other hand, there is still an argument for public funding of enrolment if external effects of education or public-good aspects are present.

Taking a European perspective, we focus our efforts on the effect of public funding on enrolment into higher education. We use data for the 15 PURE countries over the last two decades. This allows us to exploit different regimes in funding and higher education institutions between countries as well as over time. Moreover, the panel character of the data allows us to account for country-specific phenomena as well as for generally rising trends in higher education.

Not surprisingly we have to deal with the simultaneity of public funding and enrolment. On the one hand, higher public funding may be causing higher enrolment into higher education while, on the other hand, an increase in student numbers mechanically increases public expenditure on education. We use political economy information on the type of government, election times and ideology of the government to explain public funding – along with general public-sector deficit ratios.

Unfortunately it was not possible to get consistent information on the generosity of student grants and subsidised loans over time. Insofar as these public subsidies are part of the educational budget, their effect is already included in the public funding variables themselves. Moreover, systems of numerus clauses (direct enrolment rationing at the tertiary level) in the different countries did not change over time, so they will be picked up by the country fixed effect.

Our econometric specification is in general in logs. It relates enrolment rates into universities to public funding at large as well as to public funding for higher education. This specification tests whether public funding for higher education has a larger impact on enrolment than funding for secondary schooling. Other explanatory variables are the extent of entry exams in the high-school system, where we can observe if entry exams are important in no schools, some schools or most schools. Likewise, we have an indicator for the existence of tuition fees in the different countries. As rational students will react to discounted lifetime income differentials, higher returns to education should influence enrolment positively. We use PURE estimates for returns to years of education based on uniform specifications across countries, separately for males and females. Finally, opportunity costs of potential students are influenced by current unemployment rates for young workers.

We find that a 1% increase in public funding of education at large increases male enrolment by almost 1%, whereas no additional impact of funding for higher education is detected. Of course, this effect can be due to different enrolment patterns in different countries. When we include country fixed effects – to control for country-specific enrolment patterns – our elasticity reduces to 0.63%; it declines somewhat further, to 0.54%, when we also introduce time dummies to control for a uniform cross-European rise in enrolment. Once we control for endogeneity of the expenditure variables, interestingly the elasticity gets higher again.

Instruments prove, in fact, to be relevant in explaining public expenditure. Especially government ideology is highly significant both for total spending for education as well as for spending for higher education. Interestingly, centre governments spend less on education as both left- and right-wing governments. The form of the government is less important for total education, but in the case of higher education, single party governments spend significantly more as compared to coalition or minority governments. Moreover, entry exams in the high-school system are confirmed to have a negative impact on enrolment and the lack of tuition fees influences enrolment positively, as expected. But current returns to education and opportunity costs of potential students, as measured by current unemployment rates for young workers, play no role in explaining current enrolment into higher education.

In summary, our results indicate that a one per cent increase in public funding more or less increases enrolment by one per cent. For economic policy, most relevant is that this relates to general public funding of education, while the actual partitioning of these funds into expenses for secondary or tertiary education does not seem to matter.