



Post-compulsory education: Participation and politics



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ABSTRACT

In a much-cited paper [Fernandez and Rogerson \(1995\)](#) suggest that public spending on higher education is politically sustained by middle- and high income groups voting for a policy which is positive but not generous enough to allow lower income families to overcome the financial constraints that prevent their participation. Using a quantitative model, calibrated to the UK economy, we find that current public spending on post compulsory education corresponds to a political equilibrium. Support for the equilibrium policy comes primarily from low- and middle income groups, indicating that the policy needn't be highly regressive. Credit constraints play a minor role.

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1. Introduction

At present about 70% of children in the UK continue in some form of full time education after the compulsory school leaving age of 16. Average public spending on further education per student that stays on is around fifteen thousand pounds. However, since participation in post-compulsory education is positively correlated with parental income, there is a popular perception that public spending on post-compulsory education is a policy that particularly benefits the middle classes. This raises interesting political questions. Where does the political support for policy directed at post-compulsory schooling come from? Are there political forces that stand in the way of the adoption of policies that could potentially decrease educational inequalities and increase intergenerational social mobility?

The most well-known theoretical model of the political economy of public spending on further/higher education is by [Fernandez and Rogerson \(1995\)](#). Their main idea is that middle and high income groups form a “coalition” supporting a policy that subsidizes higher education; however, the level of spending that they support is set low enough that low income families are effectively excluded due to financial constraints. The equilibrium predicted by their model (when it exists) hence concurs with the popular belief that the policy is highly regressive. Fernandez and Rogerson in building their stylized model ignored variation in cognitive ability and assumed the complete absence of credit markets. Subsequent work however has strongly suggested that these assumptions lack empirical support. Most notably, recent evidence suggests that the main reason for why there is a positive

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association between parental income and participation in further/higher education is not financial constraints but rather a positive association between parental income and children's academic abilities.

Does this mean that it is time to revise the way we think about the political economy of policy directed at further education? In order to assess this I construct an empirically-based quantitative political economy model of public spending on post-compulsory education, calibrated to the UK economy. In doing so, I draw on a number of recent empirical findings that, when taken together, make the task feasible. E.g. I make use of empirical estimates of the distribution of lifetime earnings, of the incidence of credit constraints, and of the response to a recent UK policy initiative – the Education Maintenance Allowance (EMA) – to encourage participation in education past the compulsory age of 16. To date no other paper has presented a calibrated model of the political economy of public spending on further/higher education.

The main findings of the analysis can be summarized as follows. The existence of a majority voting equilibrium is not guaranteed. Nevertheless, one can provide a partial characterization and an equilibrium condition that can be used to locate a candidate equilibrium policy numerically. The currently observed UK level of public spending on post-compulsory education is found to correspond to a majority voting equilibrium. The equilibrium policy is found to improve the welfare of the majority of households between the second- and the eighth decile of the income distribution; hence, at the bottom end of the income distribution, only the very lowest income decile has a majority of households that would be better off without the policy. In contrast, the majority of households that lose out, in terms of welfare, due to existence of the policy are located at the top end of the income distribution.

Credit constraints are found to play a relatively modest role in shaping the political equilibrium. Only a very small fraction of children are deterred from staying on in education past the compulsory age of 16 due to financial constraints. Even still, it is argued that modeling credit constraints is useful for correctly predicting the responsiveness of the aggregate participation to policy and hence also for correctly depicting political incentives.

The paper is organized as follows. The following section briefly reviews the related literature on the political economy of education policy. [Section 3](#) sets up the model. [Section 4](#) presents the analysis of majority voting equilibria. [Section 5](#) defines the stationary equilibrium. In [Section 6](#) I calibrate the model to the UK economy. [Section 7](#) presents the findings while [Section 8](#) concludes.

2. Relation to the literature

The current paper contributes to the literature on the political economy of public provision of education. Most work in this area has focused on levels of education below the compulsory school leaving age. Hence, in these models, all children obtain some schooling, and the issues mostly concern school quality and how households choose between public and private schools. In this context [Stiglitz \(1974\)](#) noted early on that preferences over the level of public spending are generally not single-peaked within a mixed system.

In two important papers [Epple and Romano \(1996a, 1996b\)](#) reconsidered the potential non-existence problem. Both papers are aimed at representing the political economy of public provision of private goods more generally, but education is a leading example. In [Epple and Romano \(1996b\)](#), the authors show that if individuals are allowed to “top up” the publicly provided ration, then non-single-peakedness does not occur and, by standard arguments, a majority voting equilibrium (MVE) exists. In one important case, the model predicts that the political equilibrium is such that households with above mean income form a coalition with households at the bottom tail of the income distribution – an “ends-against-the-middle” equilibrium.

In contrast, if topping up is not allowed, so that households must either “opt in” and accept to consume precisely the publicly provided version of the good or “opt out” and go private, then Stiglitz' non-single-peakedness problem emerges. Nevertheless, using the notion of single-crossing rather than single-peakedness, [Epple and Romano \(1996a\)](#) still manage to provide a sufficient condition for an equilibrium to exist, and also to characterize what an equilibrium must look like, if it exists, when the sufficient condition fails.¹ An ends-against-the-middle equilibrium can also be obtained in the environment without topping up. This is the case where households at the top end of the income distribution opt out and go private (since they are not satisfied with the level/quality of the publicly provided version) and where households at the bottom end of the income distribution would prefer to reduce the level/quality of the publicly provided good in order to reduce their income tax payments and thereby increase their other private consumption. For this case, using education as an example, [Epple and Romano](#) provide a calibrated model to verify equilibrium existence.

Other issues that have been considered in the literature include e.g. the use of means-tested policies ([Bearse et al., 2000](#)), the choice among education finance systems when local education districts are sorted in terms of parental income ([Fernandez and Rogerson, 2003](#)), and how different age groups interact in the political process ([Levy, 2005](#)).

Fewer papers have considered the political support for public spending on education at the post-compulsory level. A crucial difference between lower- and further education is that, while public expenditures on the former tends to be enjoyed more frequently by lower income families, public spending on the post-compulsory education tends to benefit disproportionately higher income families due to a positive income gradient in participation. Nevertheless, the fact that a family may choose to participate at higher levels of spending but not at lower levels means that the same type non-single-peakedness issues occur also in post-compulsory education context. Similarly, groups that are currently participating would clearly benefit if the subsidy to

¹ [Glomm and Ravikumar \(1998\)](#) discuss a similar model with opting out and provide an alternative condition based on monotonicity of the individuals' most preferred tax rates under which an MVE exist where the median income type is decisive.

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