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Higher Education and the UK Socio-Economic System

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1) BACKGROUND

Although there is a consensus on the need to reform higher education, different views are expressed about the extent and the nature of changes to be implemented. Most controversies focus on alternative ways of financing higher education and on the orientation its development and democratisation should take. Key issues concern the relative contributions of private and public finance, the possible effects in terms of attendance and equity and the benefits for the economy and society as a whole. The recent Higher Education Bill generated important debates about the articulations between higher education, economic growth and social progress.

2) OBJECTIVES

The aim of the project was to explore the long-term relationships between funding, widening access and socio-economic aspects of higher education in order to inform current debates. Three main objectives were proposed:

- The provision of an in-depth historical account and analysis of the numbers and extent of students, staff and awards, for the purposes of evaluating the main characteristics of UK higher education development.
- The provision of an in-depth historical account and evaluation of levels and structures of income and expenditure in higher education.
- The interpretation of these data with reference to major socio-economic indicators.

The first two objectives have been met with some minor modifications and are presented in the datasets 4.a. It has been difficult to obtain historical data on expenditure relating to advanced courses in colleges of further education. It was also impossible to distinguish between resources devoted towards advanced and non-advanced courses within the same establishment. Prior to 1992, therefore, data are supplied only for universities. From 1994, data relating to advanced courses in polytechnics and further education are included.

The third objective was adapted in order to take account of debates prompted by the White Paper (2003). Continuities and contrasts with previous controversies in higher education have been explored. The analysis has been strengthened through comparison with France.

3) METHODS

This multidisciplinary research sought to combine conceptual and historical perspectives within a quantitative approach in order to analyse both the socio-economic impact of the higher education system and the driving forces behind its development.

a) Economic theory and higher education policy

Both before and during the debates surrounding the White Paper, there have been fruitful attempts to link economic theory and higher education policy in order to assess the links between funding, access and quality in higher education and the economy (Barr, 1993; Williams, 1992). The question of "how to pay for mass, high quality higher education?" (Barr, 2003a) relates to the articulation between public and private funding of higher education on the one hand and its

private and social returns on the other (Barr, 2003b; Mace, 2001; Chevaillier & Eicher, 2002; Wolf, 2002). This research sought to contribute to these debates by examining the links between the funding and development of higher education and socio-economic changes.

While the research is conducted within a multidisciplinary framework, the basic theory is that of systemic regulation. This theory attempts to interpret transformations of the economic system in terms of developing connections with spheres (like education) that are influenced, but not fully determined, by economic dimensions (Michel, 1999). Education may not only represent a cost for the economy, but also furnish a main determinant of its growth. Thus the development of the educational system may be interpreted, in part, as the outcome of regulation processes between public expenditure on education and long economic cycles (Fontvieille, 1990). The project sought to interrogate the specific role of higher education in such a process.

b) Towards a socio-economic history of education

This theoretical framework is combined with an historical approach, with history being defined as "a record of human and other events with particular reference to the dimension of time: past, present and future" (Aldrich, 2002). Thus it can be argued that links between education and the economy have been, and may still be, subject to historical change. The development of a socio-economic history of education follows Simon's (1989) idea that "the fundamental educational issues have remained the same through the years - who should be educated, how, to what level or different levels of the service of what social or industrial needs? - So the conditioning social and economic factors continue to operate".

c) A quantitative history of higher education

Theoretical and historical perspectives are combined with a quantitative framework. The methodology of quantitative history based on the principles of national accounting is used in order to collect and process long-term data (Marczewski, 1961). A quantitative history of higher education may furnish data about the nature and level of financial resources for higher education, and about the extent to which higher education, in turn, affects the nature and level of resources.

4) RESULTS

The presentation of the findings is divided into five parts. The first presents the dataset. The second provides an overview of higher education since the 1920s. The third part charts the fluctuations of funding and access over the period. The fourth part draws on historical perspectives distinguishing different regimes of higher education combining alternative policies of funding and access. Finally, some conclusions are drawn.

a) A dataset on funding and development of UK universities (1921-2002)

This dataset presents new material on quantitative history of UK higher education which refers to pre-1992 universities and includes all institutions delivering degrees afterwards. This dataset, which gathers historical series on funding and development of universities from the early 1920s, is the result of research into primary and secondary governmental and institutional sources. The dataset has been accepted by the UK Data Archive (<http://www.data-archive.ac.uk>). It is part of the collections of the Arts and Humanities Data Service History.

i) Funding

-The level of the income of universities and its distribution according to its origins (public/fees/endowment/research).

-The level of expenditure and its distribution by economic categories (wages/consumption/investment).

ii) Non-financial indicators

-The number of students and their characteristics according to gender, country of origin and other enrolment's characteristics (full or part time and undergraduate or postgraduate).

-The number of awards and diplomas

-The numbers and structure of staff

A comparison with the French perspective is helpful in determining the uniqueness or otherwise of the UK development (Deer, 2003). French data originate from Carry's (1999) quantitative work on education funding until 1996 and have been updated with governmental data (DEP, 1984-2003). Data on enrolment are based on the Annuaire Statistique de la France (DSG 1920-1945; INSEE, 1946-2003). Population data are based on Vallin and Meslé's (2001) work.

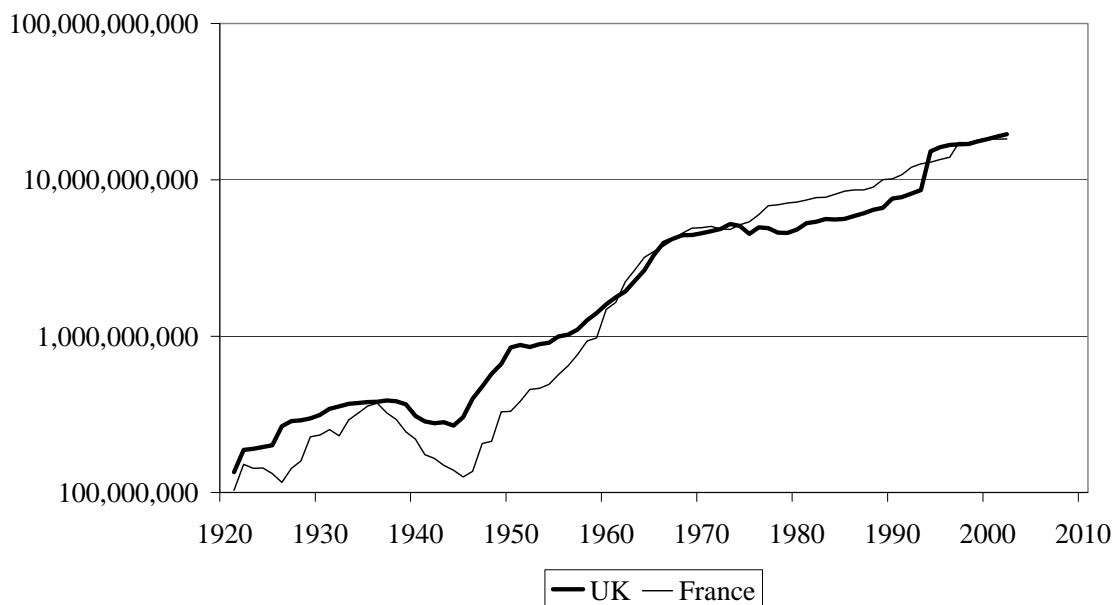
b) An overview of the growth of the system: 1921-2002

This historical examination investigates the mechanisms that regulated the articulation between the funding and development of higher education and its relationship with the socio-economic system, seeking to resituate the complexity of the current situation.

i) The rise of funding

The first result shows a dramatic increase of funding for UK and French universities. Geary-Khamis \$ expresses purchasing power parity, eliminating differences in price level between countries (Maddison, 2000). UK and French expenditure at 1990 prices in 2002 are respectively 150 and 180 times greater than in the 1920s.

Figure 1 - Expenditures of UK universities (1990 Geary Khamis \$)

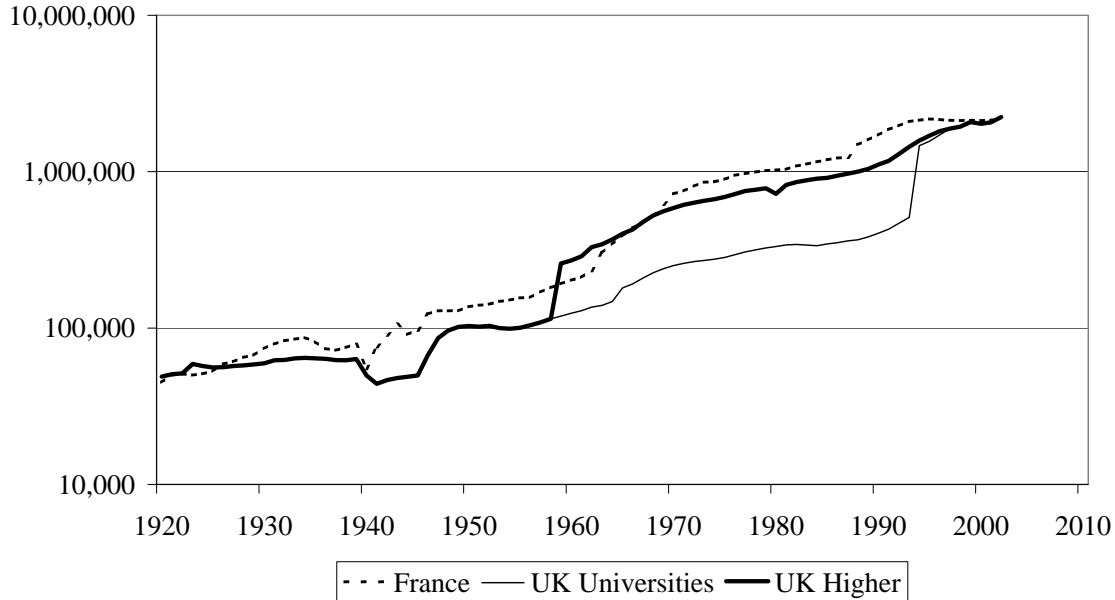


Over the period the share of GDP dedicated to the funding of universities rose from 0.06% to 1.4%. The equivalent figures for France are respectively 0.06% and 1.11%.

ii) The expansion of enrolment

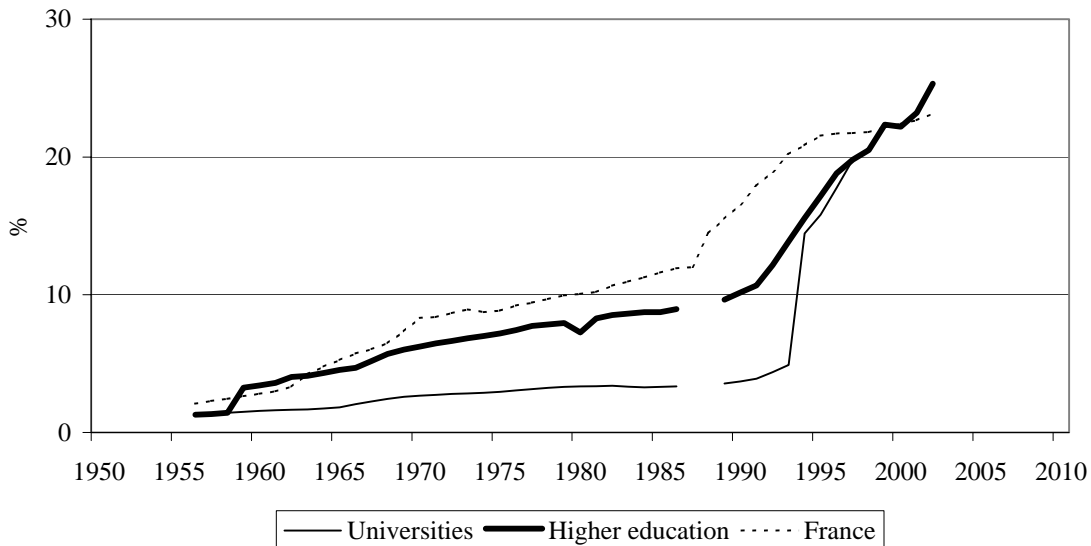
However, while expenditure increased, the number of students grew 40-fold in both countries.

Figure 2 – Number of students in higher education, 1920-2002



More significantly, figure 3 shows that the number of students in UK universities as a share of the 18-30 year old age group rose from 1.3% to 25% between 1955 and 2002. In France the ratio rose from 2.1 % to 23%.

Figure 3 - Number of Students as a Share of the 18-29 Year Old Age Group, 1956-2002

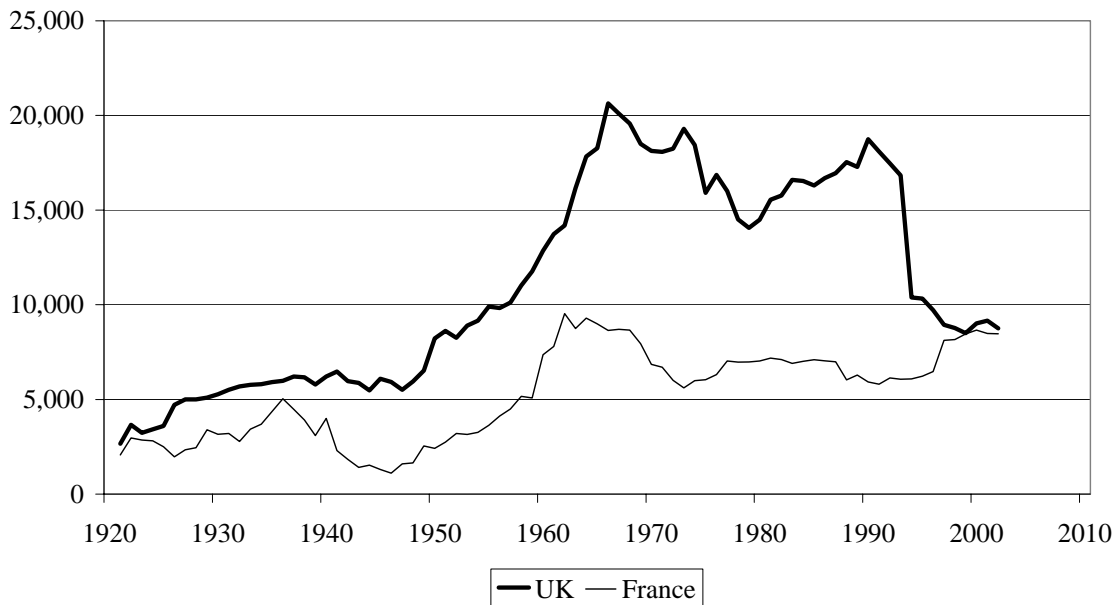


This rate is lower than the 43% figure traditionally associated with participation and related to the famous 50% target for 2010. These figures are for the Initial Entry Rate for Higher Education – which sums the percentages of the age group who enter higher education and further education colleges for the first time in each year of age between 18 and 30 (Masden, 2003).

iii) The instability of expenditure per student

Over the whole period massive increases in enrolment were reflected in massive increases in funding. Nevertheless, there were considerable variations within this overall rise. For example, in 2002 expenditure per student in the UK was more than 3.5 times its level in 1921. In 2002, however, expenditure per student was less than a half of the level of 1973.

Figure 4 - University expenditure per student (1990 Geary Khamis \$)



Falling expenditure per student, which was one of the central issues of the White Paper, began in 1990, before the re-designation of the polytechnics.

British and French expenditure per student were similar both at the beginning and at the end of the period. Much wider fluctuations, however, occurred in the UK. The following part examines the origins and consequences of these fluctuations by comparing and contrasting the historical evolution of funding and attendance.

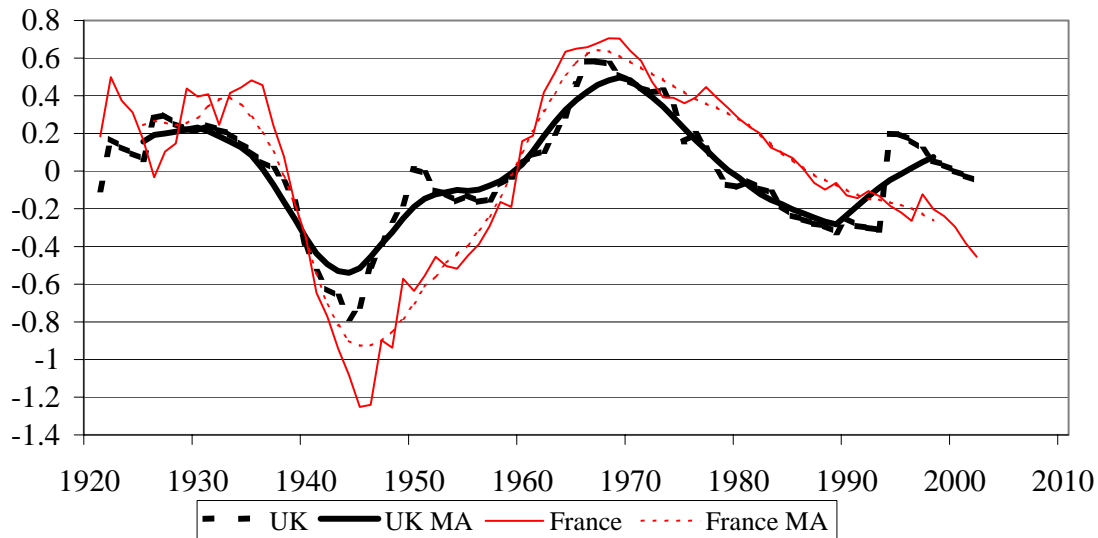
c) The evolution of funding and access

i) The Kondratiev Fluctuations of expenditure

UK University expenditure conforms to the connections between resources and economic cycles observed in other levels of education (Carpentier 2003). The long-term expansion in resources devoted towards higher education was not linear and may be related to Kondratiev cycles. Four Kondratiev cycles of approximately 50 years have been identified, each showing expansion and depression phases (1790-1820/1820-1848; 1848-1870/1870-1897; 1897-1913/1913-1945; 1945-1973/1973-?) (Loucã & Reinjders, 1999).

The increase of expenditure during the 1920s was brought to a halt by the aftermath of the 1929 crisis. The period of prosperity following 1945 led to a dramatic rise of expenditure, although this was halted in 1967 as a consequence of a decrease in capital expenditure required for the establishment of new universities. The real funding downfall followed the oil crisis of 1973 and continued until the current period, although a revival of expenditure occurred in the early 1990s with the integration of polytechnics.

Figure 5 - Fluctuation of university expenditure (1990 Geary-Khamis\$) (second order deviation from the regression curve and 9- year moving averages (MA))



A similar pattern may be observed in France where fluctuations also corresponded to Kondratiev cycles.

ii) Changes of public and private resources and the university overall income

The income structure of French universities did not change radically over the period. The rise of the share of private resources from 5% in 1960 to 13% today indicates potential future developments rather than the transformation of a system which is still essentially publicly funded. In contrast, the relative contributions of public and private resources are key elements in the evolution of the income of UK universities.

Figure 6 - Income of UK universities (£1990), 1921-2002

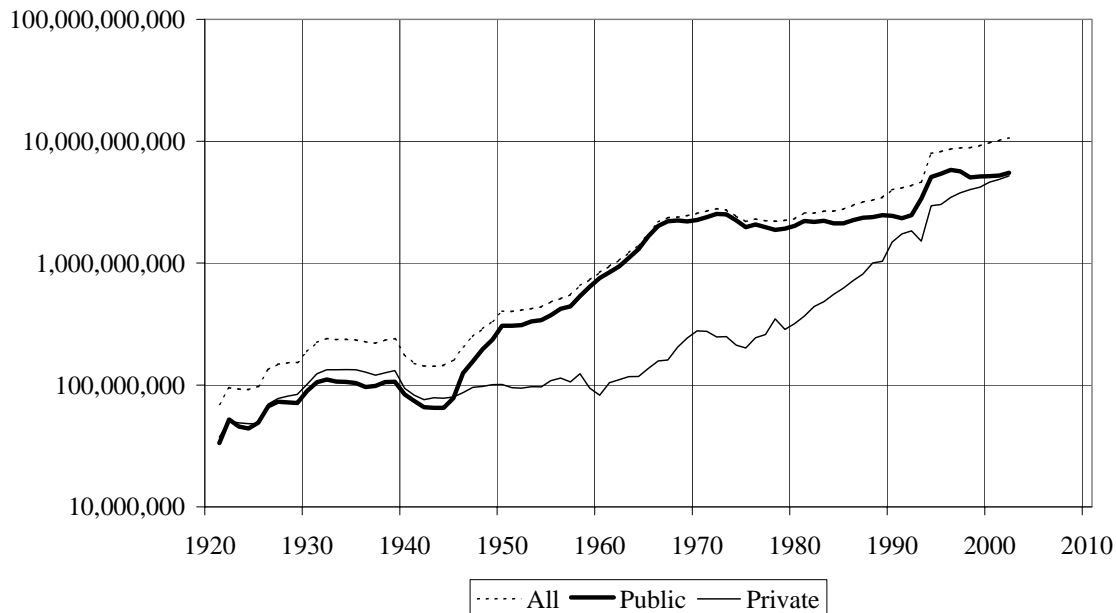


Figure 6 shows that public funding was the driving force of university income until the 1980s. Variations in public resources generated the Kondratiev-related fluctuations in university resources observed above.

Public funding nourished the post-war growth of university income and put a brake on it after 1973 in the context of spending cuts.

The revival of income growth did not take place until the early 1980s with an increase in private funding. However, such an increase did not fully compensate for the reduction in public funds and so only partially restored the overall growth in income.

Figure 7 - Income structure of universities, UK 1921-2002

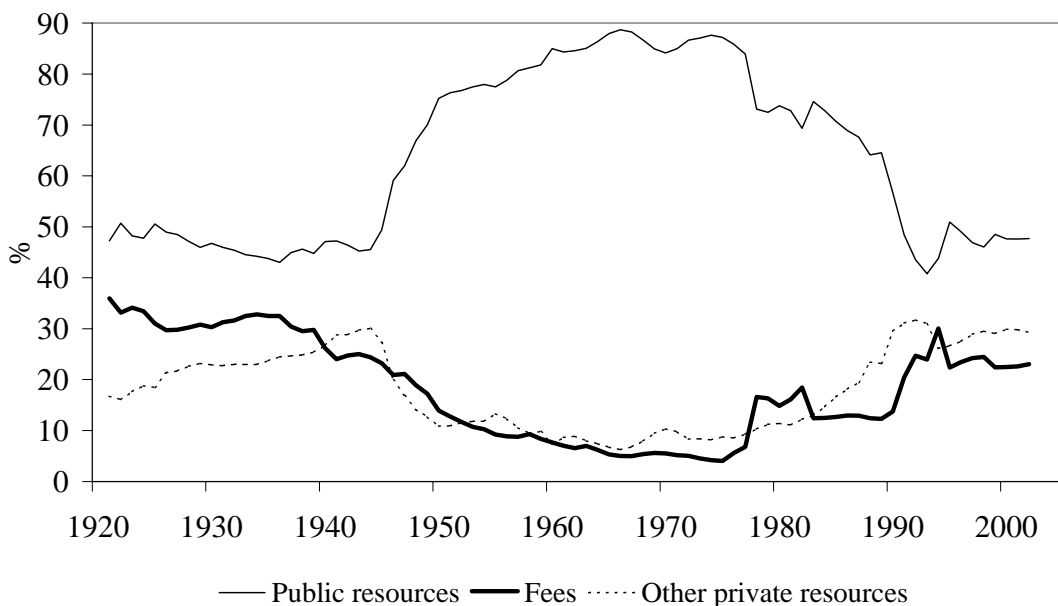


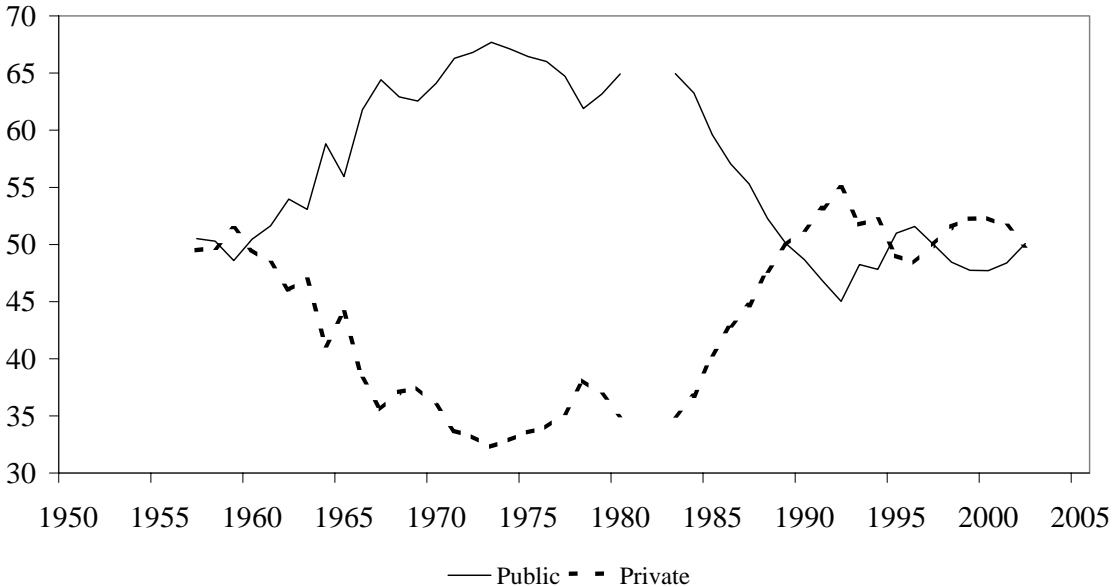
Figure 7 shows that such movements led to substantial changes in the repartition between public and private income of universities.

Between 1921 and 1945 public and private resources contributed in broadly equal amounts to the income of universities. Thereafter the share of public funding rapidly increased and reached 90% in 1973. It then fell, so that by the beginning of the twenty-first century the 50/50 distribution had been restored.

Figure 8 shows that research was also a major part of the transformation of the income structure of universities. The share of university specific funding dedicated to research increased from 5% in 1957 to 15% in 2002.

The share of public funding of research increased from 50% to 65% from 1957 to 1973, only to return to its initial level of 50% in 2002.

Figure 8 - Structure of research funding UK 1921-2002 (%)



Between 1921 and 1974 the share of university income originating from fees decreased from 36% to 4% and rose thereafter to reach 23 % in 2002 (Figure 7). Such changes may have influenced enrolment's extent and characteristics, especially as tuition fees are one of the main factors affecting access.

iii) Funding and policy of access

The effect of public funding on the income structure of educational institutions was crucial in the development of primary education in the late nineteenth century and of secondary education during the first half of the twentieth century (Carpentier 2003).

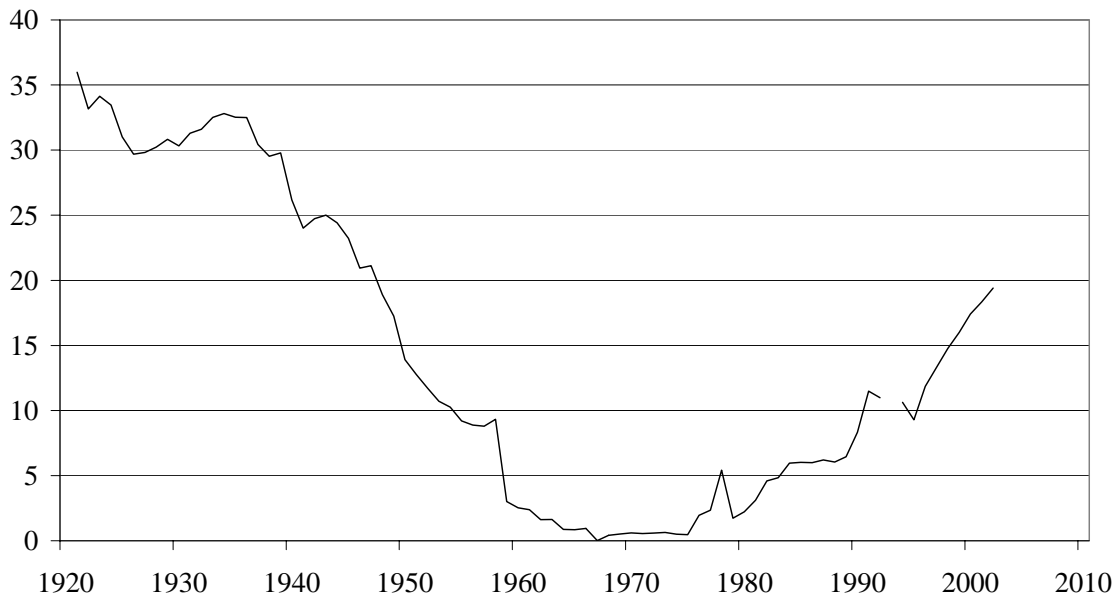
Such mechanisms became increasingly important in higher education where access policies were still affected by a mixture of public and private funds. The question of fees was central to the relationship between funding and access.

Economic cycles and public resources had an impact on the structure and levels of funding of universities and on the replacement of fees by public funding. This leads to the crucial question: Does access drive funding or funding drive access or both?

Increased enrolment was accompanied by a decrease of fees from 1945 to 1973 (figure 7), especially after 1958 and the implementation of tuition fees subsidies (figure 9).

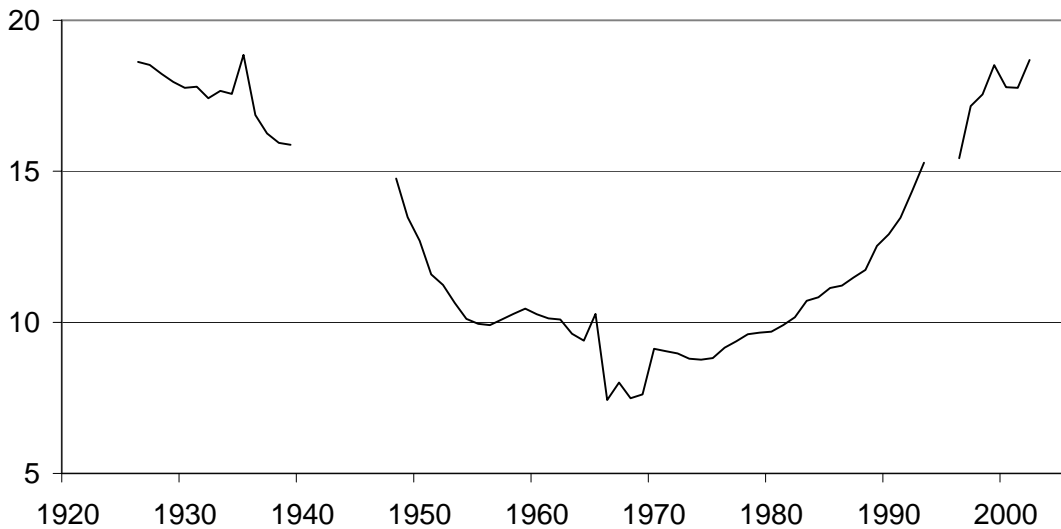
The post 1973 era led to the partial withdrawal of subsidies in a context of the control of public funding. The number of new students slowed down during the 1980s to grow again during the 1990s. The impact of the increase of fees on access depends on the crucial role of financial aid to poorer students.

Figure 9 - Tuition fees effectively paid by student as a share of Universities' income (%)



Fluctuations of public expenditure may be associated not only with the number of students but also with a change of their characteristics. The proportion of postgraduate rose from 6% to 23% from 1947 to 1973 and remained stable afterwards. The share of full time students rose from 69% to 90% over the same period and has subsequently dropped to 58% nowadays.

Figure 10- Numbers of students per full time academic staff 1926-2002



The elite system provided many resources compared to the limited number of students, prior to the mass system that developed in the 1960s in a context of growing funding. The increase of enrolment was maintained in the 1970s in a context of diminishing resources.

In this context, access might have been developed to the detriment of quality. Figure 10 shows that the student/full-time staff ratio decreased until the early 1970s and increased thereafter. This increase may also be the consequence of the casualisation of staff.

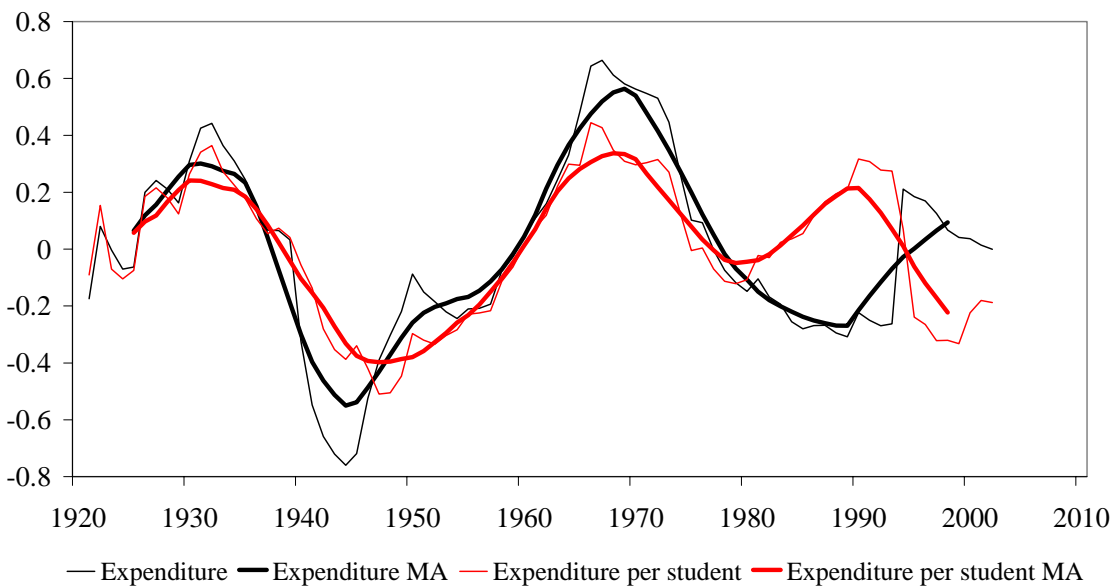
The following provides a long-term description of the evolutions of expenditure per student by revealing different historical sequences of articulations between the funding and access policies.

d) Regime of higher education: an historical articulation between funding and access policies

The notion of a regime of higher education seeks to characterise the articulations between the internal development of universities (funding, access, staff, quality) and their external socio-environments (economic fluctuations and social changes).

Figure 4 and 11 clearly show different upward and downward phases of expenditure per student, suggesting the alternations of different regimes of higher education.

Figure 11 - University expenditure at 1990 prices, UK, 1921-2002 (Second-order deviation from the regression curve and nine-year moving averages (MA)), $R^2=0,949$



The following seeks to identify these regimes and to examine the factors behind the transition from one to another in order to place the current situation in perspective.

i) -1921-1932 increase of spending per student

The creation of the University Grants Committee in 1919 symbolised the growing involvement of the state (Shinn, 1980; Shattock, 1994) in a context where public expenditure increased from 5 to 10% of GDP. Education's share of all public expenditure grew from 6% to 10%. University expenditure was multiplied by 3.5.

Enrolment was growing at a slower pace than funding, which explains the doubling of expenditure per student over the period.

The structure of university income did not change as increasing private and public resources equally drove the rise in funding.

ii) 1933-1944 decrease of spending per student

The great depression led to the decrease of non-military public expenditure as a share of GDP. Such movement particularly targeted public expenditure on higher education which stagnated from 1932 and decreased during the war. The slower growth of university funding was the result of a brake upon both public and private resources.

Both expenditure and enrolment stagnated and decreased during the war. It is worth noting that reductions in the former preceded the latter. The stagnation of expenditure combined with a moderate growth of enrolment explains the decrease of expenditure per student. French trends were similar, the turning point being 1936.

iii) 1945-1973 the Robbins era

The post-war development of universities is rightly associated with the 1963 Robbins Report (Halsey & Webb, 2000). Nevertheless, the rise of enrolment started earlier. Enrolment rose threefold until 1967 and its share of the 18-30 year old age group rose from 2% to 6%.

One important aspect of this period was that increases in funding preceded the growth of enrolment. Higher education's share of GDP rose from 0.15% to 0.6%. This was part of a context where public expenditure on education's share of GDP rose from 2% to 6%. Higher education's share of public expenditure on education increased from 3% to 12% and public intervention became orientated to all universities including Oxford and Cambridge (Tapper & Salter, 1994). The share of university income from public funding grew from 50% to 90%.

Increases in funding were greater than the growth of enrolment, thus explaining the considerable rise in expenditure per student.

Increased public funding promoted enlarged access, by the removal or reduction of fees, and sustained a qualitative development as shown by the decrease in the numbers of student per staff. Students of 1973, as compared with their counterparts in the 1950s, were increasingly female (from 22% to 30%), studying on a full-time basis (from 72 to 90%) and with greater participation at postgraduate level (from 6% to 24%).

Quantitative and qualitative indicators suggest that this phase was really the “golden age” for higher education when funding improved access without harming quality. Similar trends were in evidence in France.

vi) 1973 to 1980 between cuts in spending and democratisation

The 1973 oil crisis opened a new era which marked a decline in public funding of the educational system. For universities, reductions began in 1967 in a context of declining capital expenditure on new universities which indicated the end of the Robbins era. The major slowdown, however, took place in the aftermath of the 1973 economic crisis.

Reductions in public funding were not compensated for by increased private resources. Therefore, while the structure of university income remained relatively stable, its overall level dropped.

The conjunction of high enrolment and a reduction in overall resources led to a 35% decrease of expenditure per student. This period demonstrates a mismatch between funding and access policy. Such a trend is also observed in France.

v) 1980-1990 the control of growth

The increase of expenditure per student during this period was caused by a slowdown in the growth of numbers of students combined with a modest increase in funding. The number of new students was stable while the number of students from abroad increased.

Reductions in public funding, coupled with a rise from private sources (fees and research), produced a dramatic shift in the public/private income structure (from 86%/14% to 56%/44%).

Access grew slowly and reductions in staffing led to a rise in the student/staff ratio. Staff wages as a share of expenditure fell from 55% to 48%.

The increasing expenditure per student was not the result of higher enrolment connected to even greater rise of funding like it was the case the Robbins era but was on the contrary the combination of a slower growth of access and a policy of public austerity for which the rise of private funding did not fully compensate.

vi) 1990s disconnection between funding and access

A decline in public funding coupled with an increase in private funding produced a modest increase of total income but the explosion of attendance led to a dramatic decrease in spending per student.

The important result is that the downward trend took place as soon as 1990 when subsidies were replaced by loans and before the 1992 act. The polytechnics, whose expenditure per student was lower than pre-1992 universities, deepened the lack of resources per student of the higher education system as a whole but did not provoke it.

Moreover public grant constitutes 35% of traditional universities against 55% for new universities (Webber, 2003). As a result, trends towards more private funding slowed down in 1993 before rising again in 1995. Thus integration into the university sector increased polytechnics' reliance on private income.

vii) 1999-? New growth, new project

In 1999, a brake was applied to the decrease of expenditure per student which began in the 1980s. This new regime of growth is based upon an increase of both public and private resources (the increase of public funding was combined with the increase of fees in 1998 and the rise of private funding for research).

Increasing income contrasts with the previous period but does not compensate for the growth of student numbers. The expenditure per student is then stabilised. The White Paper proposed to increase the level of income of universities and to change the structure of funding.

e) Policy implications

i) Consensus about access, underfunding and the control of public expenditure

The study has provided evidence of the juxtaposition of several time periods. The passage from one regime of higher education to another can be connected with economic fluctuations, social changes and demography articulated around five turning points:

1945 the beginning of massive public funding

1963 democratisation

1973 control of public expenditure

1980 the beginning of private expenditure expansion

1991 The growing participation rate over the last decade is not only due to higher entry but also to the drop of the 18-30 year old population from 11 to 9 millions.

As a result, a reversal of the link between funding and access policies took place in the early 1980s. Figure 11 shows that:

- Until 1980, access and funding fluctuate in the same direction, the latter driving the former.
- After 1980 they have conflicting trends. Funding level and structure of income are still linked with economic cycles' impact on public expenditure while access fluctuations progressively became less dependent on economics.

This historical perspective can illustrate successive political approaches that led to the new Higher Education Bill's mechanisms of access and funding.

The Robbins Report 1963 expressed perfectly the approach towards the development of higher education that did not emphasise on spending. In the contrary, the post 1973 approach related more to control of costs with reference to efficiency. But the spending cut tended to damage quality. The Dearing (1997) and Taylor reports (2001) inaugurated a mixed approach stating that higher education is central but underfunded and should be complemented by private funding.

The White Paper followed such recommendations acknowledging both the need to increase access and the limits of public resources.

ii) The question of fees and the level of funding per student

As higher education increases wages, the question is whether public funding should finance private returns and whether students should participate directly to the cost of their study (Blundell et al. 2000).

At the same time, it is easier to identify and measure the social cost of higher education than its social benefits. The bill provided a mixed response acknowledging these social benefits by continuing public funding but augmenting fees.

Although the research has found no straightforward answer to whether funding drive access or the contrary, it provides evidence on some recurrent mechanisms of articulation between funding and access.

Tuition fees subsidies clearly favoured access during the 1960s. However, it is not clear whether the increase of fees from the early 1980s durably harmed enrolment. While the future suppression of upfront fees is widely welcomed, there are fears that their increase could provoke problems of deterrence to debt that may slowdown participation (Callender, 2003). The project showed the necessity of adequate financial aid in order to prevent an increase of fees from harming access.

The research also showed that fees periodically increased in the past in order to replace retracted public funding (and not as additional resources) and therefore did not lead to a rise the overall income of universities.

The question is whether the future increase of fees will play again such a role of substitution of public spending or will be combined with a proportional or even greater increase in public funding as part of a massive effort to boost the expenditure per student.

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