# STATISTICAL BASIS OF EDUCATIONAL POLICY: THE NUMBERS GAME

This article describes how statisticians helped a local
community to widen a public debate on the future provision for
education in a London borough. It started with the presentation
by the local education office (hereafter abbreviated LEA) of a series
of proposals for the reorganization of educational provision to
take account of anticipated falling enrolment. Although several
alternative schemes were advanced, they contained the common element
of a planned closure of a number of schools: in the scheme most
favoured by the LEA, this amounted to 11 or 12 primary schools and
5 secondary schools. Naturally, reaction began among the parents and
teachers in the schools due for closure, but was certainly not restricted
to these groups since wider educational principles were involved -
for example, the most appropriate size and use of primary schools.
However, the subject matter of this article is restricted to the
enrolment projections forming the basis for the reorganization.

The LEA envisaged a fall in primary school enrolment of nearly
50 % over a ten-year period. In the original discussion document,
the projections were presented simply as a table of yearly entries,
expressed as a single figure, together with rolling totals. The totals
for primary schools - the key totals, since primary schools were faced
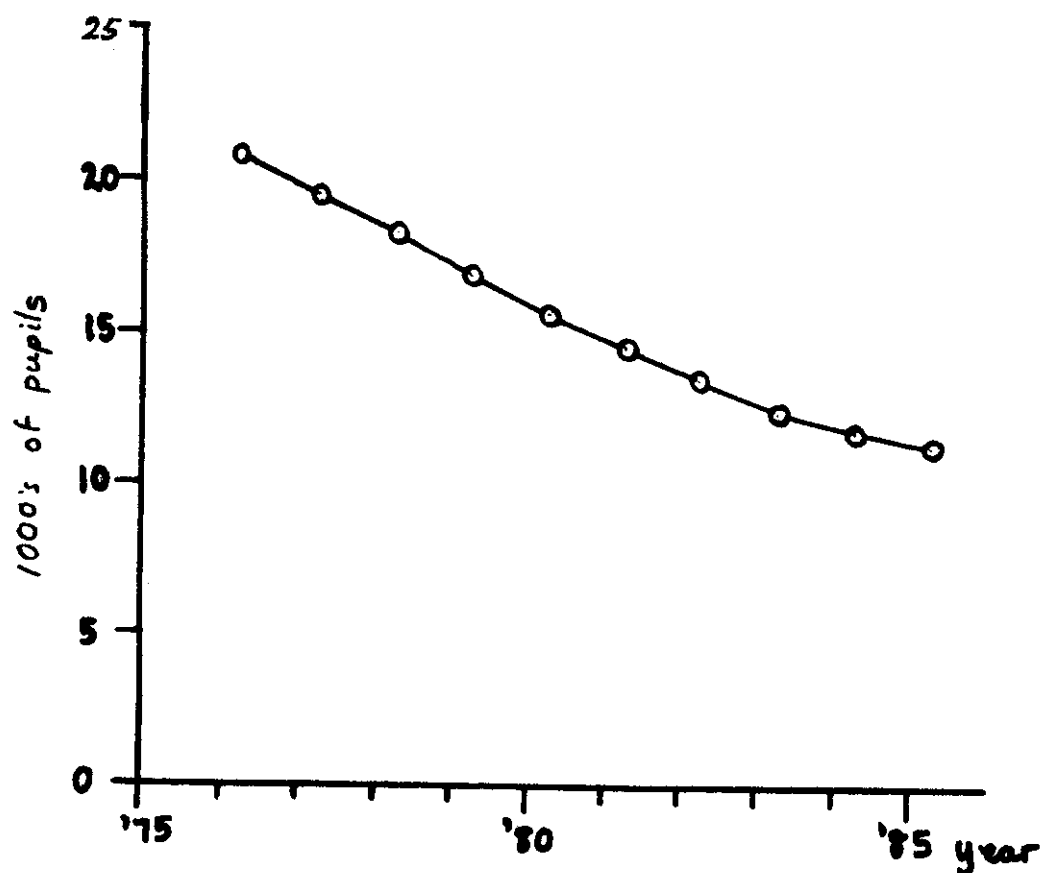with the most imminent falls - are depicted graphically in Fig.1.



Fig.1. This graph shows the projected primary school population
as presented by the local education office to form the basis for
planning future primary school provision. Ordinate: total enrolment
(in thousands); abscissa:year of enrolment (figures current for the
Spring term).

Several questions immediately arose. (a) Is the trend irreversible? What happened before 1976? What might happen after 1986? (The near-linearity of the fall seemed alarming, even to the lay public: wry comments were made about a zero intake in the year 2000!) (b) How accurate were the projections? What might be the margin of error? How were the predictions made? The document itself gave no clue at all, and initial enquiries of the LEA were met simply by the assertion that their figures were entirely correct.

We were particularly fortunate to have in the community people with professional expertise in population statistics, who knew - as good professionals should - where to start looking for checking data. Our first source was the G.L.C. (document RM 507), who provided borough-by-borough projections of the child population up to 1991. As might be expected by any sensible person, RM 507 gives a range of projections, rather than a single figure, based on different and explicit assumptions about future birthrates and migration rates. From these, estimates of the primary school population in our borough could easily be made. Fig.2 shows the highest and lowest of these estimates, alongside the LEA estimate. Two questions arose. (i) Why are the LEA figures lower? (ii) Why did the LEA document not mention the GLC predictions, since these had already been published?
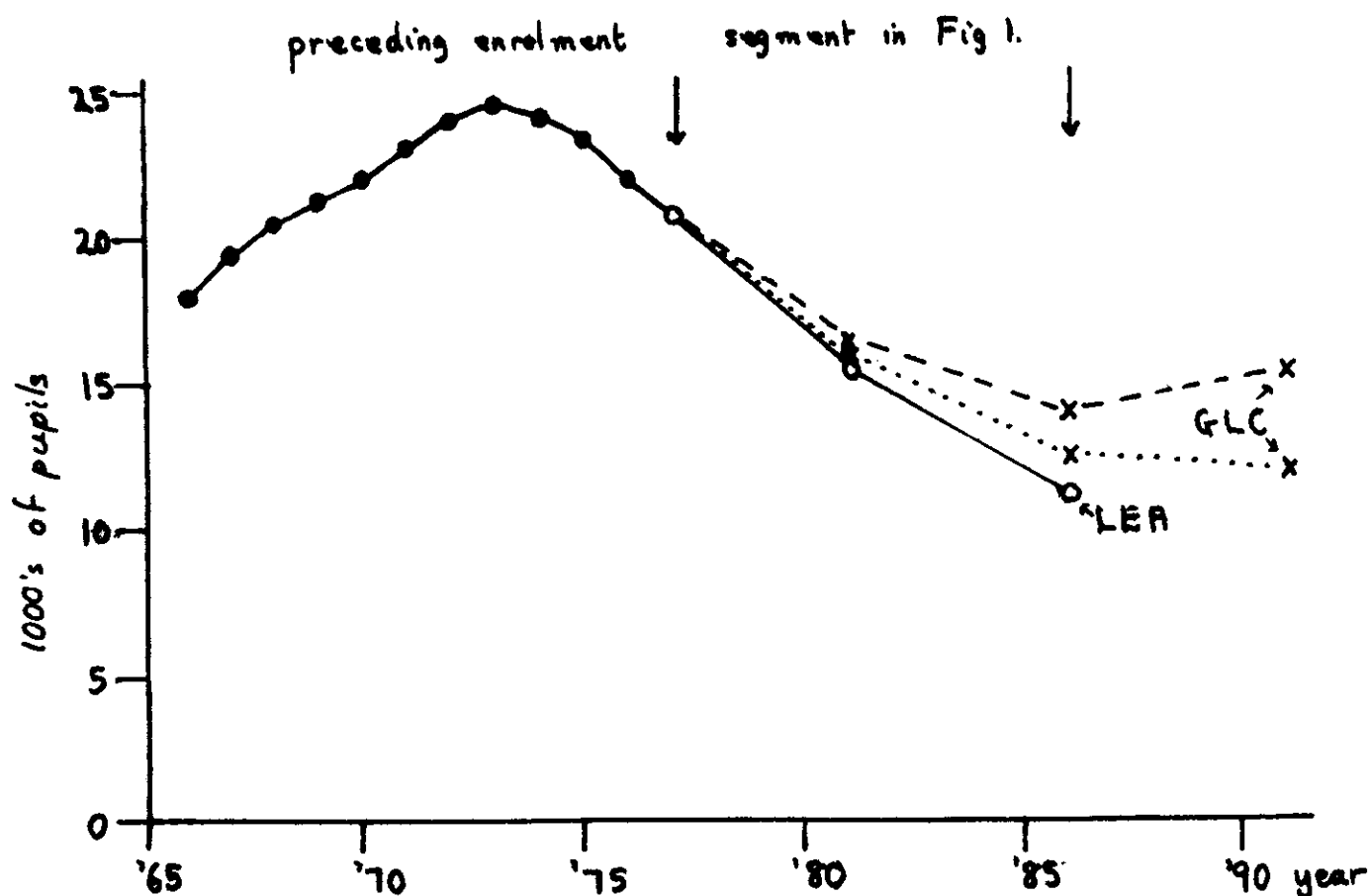


Fig.2. Here the data in Fig.1 has been placed in the context of (a) actual enrolment figures over the preceding 10 years (•) and (b) the upper (x——x) and lower (x....x) extremes of G.L.C. projections of the child population in the borough, adjusted by the fraction (7.8 %) of children in the borough attending non-supported schools at 1976 (source: G.L.C. RM 507).

Armed with this information, our statisticians approached the LEA. They were told that the LEA was indeed aware of the G.L.C. document — as one would expect — and were provided with an internal document giving the basis for their alternative predictions. To the layman this looked forbidding ("seventeen pages long" was the awesome comment of one councillor, responsible for decision-taking on educational policy) but it readily succumbed to translation by our statisticians and revealed very clearly why the LEA prediction was so low. Firstly, the LEA had taken the lower of the two GLC presumptions about future birthrate, comprising a fall to 1.4 by 1981 (almost certainly too pessimistic, to judge from recent figures). Secondly, they assumed an even higher emigration rate from the borough, simply by extrapolating the previous six years' very high emigration rate over the next ten years. (At the time these figures were produced, the G.LC. became aware of a sharp reduction in the trend to emigration, to the extent of uprating their predictions in RM 507). The net result was that the LEA projection under-read the highest G.L.C. projection by some 3,000 pupils by 1986, or 5000 with the added uprating — nearly equivalent to the nominal capacity of the primary schools they proposed to close. (although less than their actual capacity, since some are currently filled above their nominal capacity).

A second point emerging from both the G.L.C. projections, which are carried through five years further that the LEA projection, and from comparison with previous enrolment, is that the low 1986 projection does not necessarily represent the sort of stable figure suited for long-term planning of educational provision: it could, for example, be regarded as the trough in an oscillating population, between the second and third "post-war bulges".

The real value of our statisticians' work was not to argue a specific case against the LEA predictions, since all such predictions carry a high degree of uncertainty, but instead to re-open an effectively sealed area of discussion. Thus, prior to our intervention, the public at large were presented with the LEA projections as immutable "fact", the only area left open for debate being the means of accommodating for the falling enrolment. This in turn was heavily circumscribed by economic considerations based upon the LEA projections. By revealing the population predictions in their true light — as the lowest of several projections — the statisticians opened the way for a decision to be made in which educational and social considerations, rather than purely economic considerations, became of paramount importance. In the context of primary schools, this meant that the "planned closure" policy could be abandonned in favour of a policy of retaining as many small neighbourhood schools as possible, a policy considered preferable in educational and social terms.

Thus, the service provided by our statisticians was essentially threefold. Firstly, they knew where to look for corroborative or alternative information. Secondly, they were able to probe the technical basis of the policy at levels beyond the lay public or indeed of the councillors and officers responsible for decision-making. Thirdly, they could translate technical arguments in a way allowing a more informed decision-making process by the public and councillors. However, I must emphasize that we were unusually lucky to have statisticians among us who were willing and able to help: there is no doubt whatsoever that, had this not been the case, a very different decision would have been made.

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