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ABSTRACT

In this document the teaching of economics in British schools is investigated by the Royal Economic Society in Collaboration with the Association of University Teachers of Economics and the Economics Association in Great Britain. The following five major questions are considered in this review of the teaching of economics at the university and secondary level: 1) what branches of economics and of associated disciplines should be taught in schools and examined by Examining Boards; 2) what is the desirable division between the economics that should be taught in schools and that taught in universities; 3) what are the desirable forms and tests of qualifications for admission to university courses in economics; 4) in what ways can the teaching of economics in schools be improved; and 5) in what ways can examinations in economics at school level best test the competence of candidates? A general review of economics education and the answers to the five questions are provided in the document. Major goals for teaching British economics and suggested teaching strategies are discussed. (Author/JR)

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REPORT OF COMMITTEE ON THE TEACHING OF ECONOMICS IN SCHOOLS

I. Terms of Reference

1. The Council of the Royal Economic Society during the autumn of 1968 approached the Association of University Teachers of Economics and the Economics Association, representing those engaged in teaching economics in schools and further education, and invited them to join with it in appointing a Committee to consider the teaching of economics in schools. The Royal Economic Society hoped that the Committee would consider certain major problems but was anxious not to impose on it any narrow terms of reference and left it to define its terms of reference for itself.

2. The major problems that the Royal Economic Society wished to see considered included the following:

(1) What branches of economics and of associated disciplines should be taught in schools and examined by Examining Boards as forming part of a school course in economics?

(2) What is the desirable division between the economics that should be taught in schools and the economics that should be taught in universities?

(3) What are the desirable forms and tests of qualifications for admission to university courses in economics?

3. The Association of University Teachers of Economics and the Economics Association accepted the invitation of the Royal Economic Society and each body appointed three members to the Committee. At its first meeting the Committee decided to co-opt a further member with experience of teaching economics in a polytechnic, and shortly after decided to increase the representation from teacher education and ensure that the Committee should be fully in touch with thinking in university departments of education.

4. In interpreting, as it had been invited to do, its own terms of reference, the Committee has given considerable thought to two problems in addition to those set out in paragraph 2:

(4) In what ways can the teaching of economics in schools be improved?

(5) In what ways can examinations in economics at school level best test the competence of candidates?

5. The Committee has held in all 14 meetings. It has had the benefit of a long discussion of its problems, of the definition of a central core of economics, and of methods of testing comprehension of economics with Professor K. E. Lumsden, Director, and Professor Attiyeh, of the Economics Education Research Project at Heriot Watt University, Edinburgh. It has, in addition, given much time to the study of the syllabuses and examination papers in economics and kindred subjects and of the various Examining Boards operating in the United Kingdom.

II. The Purposes of Economics in Schools

6. The Committee has concentrated its attention wholly on the problems of the teaching of economics at the sixth-form level where universities and schools have most direct common concern; it has not attempted to deal with any possible repercussions on teaching at earlier stages.

7. In any consideration of the teaching of economics in schools, it is important to have always in mind that such teaching serves the needs of three different types of students. These needs may sometimes overlap, but may require substantially different emphasis on different aspects of economics as a discipline:

(i) a general education in the nature of economic problems and their elucidation, sometimes as part of a broader programme, useful to anyone in any future walk of life but expected to be formally concluded at the school stage;

(ii) an introduction to the subject of economics for boys and girls expected on leaving school to go into occupations (commerce, banking, etc.) in which some understanding of economic reasoning and assessment of evidence is valuable and for which further study of the subject may be a condition of professional advancement;

(iii) an introduction to the subject of economics for boys and girls who may intend to proceed to its further study as an academic discipline in a university, polytechnic or other place of degree-level study.

A complication is that, while these three different needs may be identified in relation to what happens to different boys and girls after they have left school, it may be neither easy nor desirable to draw such distinctions when they enter the sixth form; in some cases it may be impracticable before they leave.

8. For the first two groups the important question is whether the subject has been reasonably well covered as a whole. Economics is, or should be, an internally consistent system of thought in which all the parts are inter-related. No essential parts can be omitted in even a preliminary attempt at exposition of the system as a whole. Thus a preliminary course must inevitably achieve completeness through some measure of simplification and leave a necessity, in the case of those who wish to proceed further with economics, for the further underpinning of much of what was learned at this superficial level. Even in the case of such preliminary teaching and examining it is relevant to ask whether enough account has been taken of the changes in the character of economics in the past thirty or forty years. We shall consider this question in paras 11–12 below.

9. For the third group—those who are to proceed to a university or other place of advanced study—the question is whether the foundations have been laid upon which further and more advanced teaching can be based, or whether, in anxiety to serve the needs of the first two groups, there has been a failure in teaching to build firmly enough the necessary foundations for future more advanced work and in examining to provide tests of the qualities and capacities that it is desirable to encourage and assess.

10. Since many of the problems of the planning of the teaching of economics in schools and its testing in subsequent examinations hinge on the possibilities or impossibilities of satisfactorily meeting the differing needs of these various groups simultaneously, we think it best to consider more fully at this stage both the recent trends of economics and the criticisms that have been made of the present syllabuses and the teaching of them.

III. The Changing Character of Professional Economics

11. Over the past thirty or forty years the character of economics as a discipline has very greatly changed; the war of 1939–45 was in many respects a dividing line. Before 1939 economic decisions were made largely on a basis of rational, but essentially non-quantitative, argument reinforced by judgment of the relative importance of the relevant considerations. The task of the contemporary economist was to perfect the rationality of the argument. Today decisions are in the very great majority of cases made on the basis of quantitative evidence. The task of a contemporary economist is not only to insist on the rationality of the argument but also to collect, systematise, analyse and present the quantitative evidence and to see what

conclusions can reasonably be drawn from the data both as they affect the environment in which action must be taken and as they affect the decision itself. Today no professional applied economist (and most economists work as applied economists) is employable who cannot handle with competence and confidence the quantitative evidence that is relevant to the range of decisions with which he is concerned.

12. At the same time professional economics has become increasingly mathematical in the forms in which its arguments are conducted. It has become increasingly difficult for anyone who cannot read a book or an article employing mathematical symbols or processes to keep abreast of current thought and development of the subject. For this reason, university faculties of economics now find many of their entrants inadequately provided with the foundations for advanced study of economics. They have either themselves to teach the mathematics required or else limit the curriculum for those who dropped mathematics at O-level to those parts of the subject which are susceptible to a mainly literary treatment.

IV. The Division of Teaching between Schools and Universities

13. This development presents two sets of problems involving the schools with the universities:

(i) What contribution may the universities, polytechnics and other degree-level institutions expect from the schools in preparing entrants for undergraduate economic courses?

(ii) How may the schools meet both these claims of the universities and polytechnics on their limited resources and at the same time the claims on behalf of the other two groups represented in the schools and likely to be the majority?

14. The first question is principally concerned with the extent to which universities and polytechnics should be able to assume that students who propose to study economics at the university level have the necessary background of training in mathematics and statistics, and if so whether that training should be acquired within the framework of the sixth-form economics syllabus.

15. At present different universities adopt different criteria for admission of students to read economics. No university makes a previous knowledge of economics a condition of entry

to an economics course. On the other hand A-level mathematics is a requirement for just over 15% of all courses and O-level mathematics for just over 80% of the courses (C.R.A.C. *Degree Course Guide to Economics*, 1972–73). In a number of universities which do not make A-level mathematics a compulsory requirement for admission to all degree-level economics courses, a preference is likely to be given, *ceteris paribus*, to a candidate for entrance who possesses qualifications in A-level mathematics and who has thus demonstrated his numeracy and his capacity to acquire the mathematics required for specialist study of university economics.

16. Whatever may be the formal or informal requirements for university entrance, there can be no doubt about two things. First, numeracy is a *sine qua non* for any serious study of economics. Second, for specialisation in economics at degree level, an ability to understand and deploy certain mathematical and statistical teohniques is well-nigh essential.

17. The question is how far and in what way each of these special needs of pupils who will be proceeding to universities and polytechnics can best be met by the schools and whether provision should be made for these within the syllabus for A-level economics. It is necessary here to distinguish clearly between (1) training in algebra and other branches of mathematics used in economic analysis and in the theory of statistics on the one hand and (2) the elements of numeracy and the simpler applications of quantitative methods to economics on the other hand.

18. The Committee does not believe that it is practicable to teach these requirements for mathematics used in economic analysis and statistical theory within the limits of an A-level economics curriculum without devoting to them much more teaching time than would be appropriate for the great majority of candidates for A-level economics, without serious detriment to the teaching of the economics part of the syllabus, and without introducing an undesirable hurdle in the path of the majority of candidates. It believes that the special mathematical needs of those who are intending to proceed to specialist university study of economics are better met by the creation of an A-level examination in mathematics and statistics for social scientists. The Committee welcome the move by one or two examining boards in introducing an A-level syllabus in mathematical and statistical methods applied to social phenomena. This could be more attractive and useful to prospective students of the social sciences, including economics, than the customary mathematics syllabuses associated with the natural sciences; the Committee hope that it will become more common and more widely utilised. Such an examination must be regarded

as an alternative to other subjects such as history, languages or experimental sciences, and if chosen as a subject for sixth-form study, it should be in competition with these as a separate A-level subject.

19. The Committee does, however, believe that the elements of numeracy and the simpler applications of quantitative methods have now become such an essential part of economics that they should be included, at the appropriate level, in the A-level syllabus. This is no longer a qualification that is required only by those who will be proceeding to study economics at the university level but one that it is desirable to inculcate in all students, even if their training in economics will not extend beyond the A-level. The Committee has much sympathy with those who would argue that the elements of numeracy are today such a necessary qualification for all branches of modern life that they should be universally required in the same way as is the use of English. But even if that were the case, it would still remain desirable to teach their applications to economics as part of a sixth-form curriculum and of an A-level syllabus in economics.

20. While A-level economics is nowhere a condition of entry to university economics, criticism must be made of the slowness of many universities to recognise that, today, some two thirds of all entrants to their economics courses are likely to have studied economics for two years or more at school. The traditional pattern of university teaching of economics has been a first year in which the elements of economics are demonstrated, covering a wide range at a very simplified level of generality, followed by two years re-traversing the ground at a more advanced level. This has been a legitimate pattern so long as the majority of students have been newcomers to the subject, and it will continue to be required for a significant number of university entrants. The Committee regard it as most important that university entrants who have devoted their principal attention at school to mathematics, the natural sciences, history or languages shall not be debarred by a course requirement in economics from taking up economics at the university stage. Many of the best students continue to come to the subject in this way. The door should remain open to them, and it is important that suitable introductory provision shall continue to be made for them.

21. But many of the university and polytechnic students of economics in these days have already completed a similar elementary course before entry. To be treated as complete novices they find irritating and discouraging, and they are liable to lose interest in consequence. The Committee

believes that many universities and polytechnics ought to look at their present curricula and ask themselves whether they are properly adapted to the needs of today; whether they have sufficient flexibility to allow a student who has made a good deal of progress in economics at school to begin immediately to fill any gaps in his previous education and extend his range, and thus use as effectively as possible the whole of his undergraduate time.

22. There remains, from this standpoint, the question whether the content of the school course in economics, conceived as the best possible preparation for university entrance, should or should not differ from the courses directed to either or both of the other purposes recognised in para 7 above as major school responsibilities. To this question the Committee has devoted a great deal of time and thought. In the end it has come to the conclusion that the fundamental needs of all three groups, *when properly conceived*, are so similar that they can without disadvantage be taught together. The university and polytechnic members of the Committee have been impressed by the fact that those members of the Committee who have experience of teaching economics in schools are emphatic as to the pedagogic advantages of not distinguishing between the three groups. Moreover the three groups, as was said earlier, though logically distinguishable in retrospect, are seldom distinguishable at the time that they are taught and when their future careers are still uncertain.

V. The Essentials of School Economics

23. The necessary condition for such unanimity is agreement on the broad terms upon which economics, as a school subject, should be taught. The Committee is agreed that the common object, for all purposes, should be to instil into the minds of those first encountering economics as much as may be practicable of three essential elements of economics:

(1) a capacity to understand both in theory and in application the principles upon which an economy such as that of the United Kingdom works;

(2) a general understanding of the more important economic institutions within which the national economy operates;

(3) a capacity to handle, interpret and present the statistical evidence on which economic decisions are reached.

What is fundamentally at issue is the emphasis that can and should be attached to each of these three elements in a course in which there is limited time available for teaching.

24. The Committee would regard the first of these elements as basic. Without an understanding of the main principles of rational economic choice and decision-making and of the forces that operate in a modern economy the most detailed knowledge of our economic institutions and the constraints that they impose is unprofitable. And equally, from the point of view of the analysis of economic problems, the most perfect knowledge of statistical techniques is unprofitable unless it can be applied to the handling of problems or the testing of hypotheses which have economic implications and content. Thus adequate teaching of the principles of economics is a *sine qua non*. What is even more important, such capacity to reason clearly and to analyse an economic problem rationally is not a quality that will emerge automatically in later life as the result of experience.

25. A general understanding of the more important economic institutions has a very different role. The principles of economics do not work in a vacuum. They are subject in any country to constraints imposed by a variety of institutions, and by a variety of other social and political objectives. Any real understanding of economics requires an awareness of such institutions, an appreciation of their general characteristics and a knowledge of how they affect the market economy. Provided that this awareness is created, however, there is no great educational value in multiplying detailed information about a large variety of institutions.

26. A capacity to understand how quantitative evidence is and should be handled lies between the other two elements of economics. Almost all arguments about economic policy are in these days conducted in quantitative terms. It is very necessary for anyone working on economic problems to be able to judge critically the statistical evidence that is all the time being presented in journals, in the press, and in the working material of most industrial and commercial institutions: to be able to judge how far statistical evidence can or cannot legitimately be used to infer or support causal relationships; to be able to make such elementary adjustments to different data as will permit them to be legitimately compared and used to support an argument. Of the importance of training in this field there can be no question, and it is *not* made less essential to an economics course by the Committee's emphasis (para 18 above) on the desirability of a separate course in mathematical and statistical methods applied to social phenomena. All that

is at issue is just how far such training should be carried and how it should be balanced with training in economic reasoning and analysis within the limits of a school course which can effectively be taught.

27. There remains the question of the range of subject-matter over which it is practicable, within a school programme, to pursue these three elements which are the feature of contemporary economics. If the teaching is to provide a useful once-for-all introduction for pupils who will get no further formal education in the subject, it is almost inescapable, as was said above, that the range should extend to the main areas of the subject. It is necessary, if the pupil is to start from his own experience of economic decisions, that it should include a good deal of what is ordinarily known as microeconomics: the decision-making processes of individuals and business enterprises, the working of markets and making of prices. It is necessary if the pupil is to acquire an elementary appreciation of the contemporary problems of unemployment, inflation and balance of payments, of taxation and interest-rate policies, that it should cover a good deal of what is ordinarily known as macroeconomics: the make-up of national income and expenditure, the forces determining aggregate demand and the interactions of factor-prices and product-prices. On the other hand, the danger of such extensive coverage resulting in worthless superficiality is obvious—all too obvious, in fact, in the frequency with which some contemporary examiners invite schoolboys to solve policy problems which baffle the experts.

28. A further limitation to the practical content of a school syllabus is presented by the difficulties of the school teacher himself. He is frequently single handed, teaching many hours of the week and with very little time for preparation; yet he is expected to cover the whole field of the syllabus. No university teacher is ordinarily expected to keep himself up-to-date over the whole field of economics, including economic history and a variety of closely associated subjects. At the university level this problem is ordinarily solved by such division of labour that the area over which the teacher must have full mastery is sufficiently limited for that to be possible. At the school level this is impossible, and a school syllabus must take account of the fact and of the limitations it imposes on a teachable syllabus.

29. The Committee believe that the answer to these problems so far as they concern the teaching of *economic theory* is to be found in *simplification*. It is the answer which has a teaching value in itself since it represents the characteristic method by which economic analysis, at all levels, proceeds. It promises something useful and lasting for the boy or girl who will not

take the subject further while instilling no bad habits to be unlearned by the pupil who goes on.

30. The main body of economics necessarily takes the form of the construction of models designed to be simple enough to examine the principal repercussions of changes in economic phenomena and at the same time complex enough to introduce all those phenomena which are of significant importance in a given context. In the first stages of economic teaching it is more important to establish a confident handling of simple and readily intelligible models than to provide a more elaborate but confusing technical display. The Committee, therefore, sees the teaching of economic theory to be centred upon simple models, and in particular models designed to demonstrate such major aspects of economic study as:

(i) the logic of choice in terms of opportunity cost and the marginal principle;

(ii) the logic of specialisation and trade in terms of comparative advantage;

(iii) the partial analysis of supply and demand in a single market;

(iv) the determination of the rewards of factors of production; and

(v) the general analysis of aggregate national income, expenditure and activity.

It would, of course, be important to bring out from the first the mutual inter-dependencies of the economic phenomena here represented and, in particular, the fact that statements which may be assumed to be true of small components of a large aggregate may not be true of the large aggregate itself.

31. As regards *economic institutions* it was emphasised above (para. 25) that, provided that an awareness is created of the constraints imposed on the working of the economy by their existence, there is no great educational value in multiplying detailed information about a large number of institutions. This is a branch of economics in which, we believe, it is easy to push teaching too far. To do so is the more tempting because it is a branch that it is relatively easy to teach and to drill into pupils. In later life almost every professional person working in an economic environment, as well as almost every professional economist, will require an immensely detailed knowledge of the exact workings of certain institutions. But this will come readily from experience and does not require more than a broad foundation of understanding on which to build it. Some of the time that will be needed to teach other things should, we believe, be saved from this less rewarding field.

32. In the case of *quantitative methods*, it is the essential techniques of handling quantitative data which it is important to convey at the schools level. Paradoxically, though up-to-date data may be of importance in motivating the pupil, in stimulating interest and in helping the pupil to see the immediate relevance and applications of techniques, the data themselves are of little or no educational value. It is important to acquire the more permanent capacity and equipment to handle such data and to understand the statistical inter-relations of certain phenomena, but not to memorise data which are rapidly changing.

33. In the view of the Committee the quantitative techniques which should be taught to all A-level candidates in economics should be confined to those which impose relatively limited strain on the abilities of candidates who are not otherwise mathematically minded. We suggest that the teaching and examining in this field shall cover:

(i) Understanding of the general characteristics and limitations of the main sources from which economic data are obtained; the imperfections and margins of error of data.

(ii) Problems of measuring change; measurement of price changes; measurement of real changes; difficulties caused by seasonal or climatic variations; simple methods of eliminating them.

(iii) The logical problems of the use of quantitative data to interpret causal relationships; the broad methods of attempting this (but *not* the detailed techniques of actually doing it); the validity of such operations and the limitations of the inferences that can be made.

(iv) The choice of appropriate techniques for handling quantitative problems of different kinds.

34. The present pattern of sixth-form teaching in economics is determined partly by the A-level syllabus, but more by a tradition of external examinations and of teaching for such examinations. It is not as easy in economics as in some other subjects to limit the scope of teaching and examination by definition of what is or is not included. One cannot, as in many mathematical syllabuses, define the techniques included or excluded by naming them. One cannot, as in history, define the periods of data that will be included or excluded; any attempt to limit the extent of use of backward-looking data would impose greater and not less burden on a teacher. Furthermore, the Committee is agreed that the A-level syllabus and still more the examination papers, while they should insist

upon a thorough treatment of the core of the subject as described above, should also leave room for the individual teacher to develop around it, and in contact with it, his own selection of subject-matter, deriving from opportunities afforded by his school's location, inquiries pursued by his pupils, and his own personal interests within the subject. Reforming the syllabus is important and there is appended to this report a draft syllabus *illustrating* the points here made. But the more important move required is to change the tradition of teaching and examining, and to these problems we address ourselves in the following sections.

VI. Methods of Teaching School Economics

35. The above treatment of the essentials of school economics gives to reasoning in terms of a model the central place in teaching as well as making particular simple models the core of the material to be taught. It should provide the habitual mode of organising thought and data, whatever the material put before the pupils in any school. There is only one other general precept of universal application. Any systematic teaching of economics must start from the need to think rationally about all the various aspects of economic life and to substitute logical reasoning for emotional preconceptions. It must distinguish the value judgments that go into the specification of objectives from the principles of optimisation, both in balancing objectives against each other and in determining how the chosen objectives can most economically be achieved. It must distinguish the extent to which conclusions derive in whole or part from built-in value judgments on the one hand and from logical reasoning on the other.

36. These essential considerations should, in our view, dictate the general character of the competence in methods of economic reasoning and analysis which it is desirable to inculcate. But they do not in the same sense dictate the teaching methods by which they should be inculcated. The greater part of economics is essentially abstract. But abstract reasoning does not come naturally to all students. Many, probably indeed most, students can best be brought to understand and accept abstract and generalised propositions by approaching them first through more concrete examples of a general principle in its application to cases within their own everyday experience. Many others are motivated in their studies of economics to a much greater extent by interest either in national economic policies or in things of local and domestic concern to them personally. Their interest will be captured and held only if it is clear that economic reasoning and analysis can help

them to understand such problems. It is the hall-mark of a good teacher of economics that he will know how to use such special and particular curiosities of his pupils to captivate their interest, to bring out the principles affecting the particular issue, and thus to inculcate by degrees a capacity for more abstract reasoning and analysis.

37. There are, we suggest, four implications of this. First, there is in the nature of things no single perfect way of teaching all pupils, to be advocated as an orthodoxy and employed in all cases. The best way of teaching a group of students who are already well trained in mathematics and have learned there the rudiments of abstract reasoning may be quite different from the best way of teaching a group of students who have a more down-to-earth approach to the subject, and little previous experience of abstract reasoning. Equally the best way for one teacher, with a given personal background of experience and interests, will be different from that for another teacher with quite different gifts, knowledge and interests. It is possible to help teachers to make the most of their own facilities, qualities and opportunities, and much work has been devoted to this. But we do not think that there is a single orthodoxy of teaching method to be recommended by us and applied by all teachers to all pupils.

38. Second, we would stress that, although the interest of pupils can be stimulated and held by the applications of economic reasoning to realistic examples from national or domestic contemporary events, it does not follow that there is any inherent importance in seeking to memorise the data and detailed circumstances of those events. What it is sought to inculcate is the fundamental power to think and argue rationally, objectively and in full awareness of any imported personal value judgments about those events, and not the data of the events themselves. This needs especially to be stressed because, in testing a candidate's capacity to reason in this way, an examiner is likely to ask candidates to analyse some ephemeral situation which has been generally under discussion in the previous few months and about which a certain amount of background knowledge can reasonably be assumed. But that type of question does not aim to test the candidate's very detailed recall of ephemeral trivialities, such as are properly forgotten a year or two subsequently. Both teachers and students should not be misled, particularly by looking at such questions three or four years subsequently, into thinking that knowledge of ephemeral data is desired by examiners or is to be valued otherwise than as momentarily available material on which to test the essential capacity to reason.

39. Third, while reasoning in terms of a model has always been characteristic of economics, it is not always evident to the student what model should be used to tackle a particular question. The capacity to identify the type of model which will enable an economist to handle a particular question is a capacity that must be learned by experience and by watching a teacher examine a given problem, and apply to it the relevant and appropriate model. This capacity to identify and apply the appropriate model cannot be acquired merely by learning the properties of the model itself. The art of economic analysis cannot be fully learned from a textbook of pure economics.

40. Fourth, all models, and particularly those models which are normally used in teaching elementary economics, are in greater or lesser degree simplifications of a more complex world. In order that a simplified model shall operate and be easily comprehensible it almost always possesses certain in-built assumptions; it may assume that resources are so nearly fully employed that more resources for one purpose must mean less for another; it may assume that sellers are operating in an almost perfectly competitive market; it may assume that sufficient time has elapsed for full adjustment to a changed situation; there are numerous other in-built assumptions of particular models. It is an essential qualification of any well-trained economist that he should always be aware of the underlying assumptions of the model he is using and able to judge whether the difference between those assumptions and the particular case that he is examining is so great as to invalidate the argument. This awareness of the characteristics, assumptions and limitations of models is a capacity that a good teacher will be constantly attempting to instil.

41. If both the interests of pupils and the ultimately desirable capacities of a trained economist indicate that economics is best taught, not as a set of abstract theorems but in relation to the problems that particular models are designed to analyse, it has to be asked whether this imposes limitations on the syllabus that can be taught and whether the means and materials exist or can be provided to teach it.

42. After much discussion we are convinced that, provided that the essential models are kept reasonably simple, and that their limitations are recognised, the syllabus that we would regard as inherently desirable is capable of being taught, provided that teachers can be given much needed help in certain ways. The principal help that would appear to be necessary is help with teaching material.

43. We have given much thought to the extent to which teaching methods that are based on what are commonly known

as " heuristic " principles can usefully be applied to economics. We have in mind a wide range of methods including class field studies of local problems, case studies based on printed material, the use of case studies from economic history, role playing in relation to decision-making, the preparation of projects by individual students based either on personal field work or secondary material. The Committee attaches great importance to such methods of teaching for two reasons. Firstly, they ensure that economics is seen in action as a means of handling real problems. Secondly, they ensure that students are faced with the problems of seeing how to set about a piece of economic analysis and the choice of the appropriate economic techniques for handling it, and are tested in their capacity to do this.

44. We recognise, none the less, that there are very considerable difficulties in using these methods. They involve problems both of teaching and of examining. In regard to teaching the problem is principally one of shortage of adequate pre-prepared material. While there already exist a few books of case studies for use in the teaching of economics in schools, there are not at present sufficient to meet the full needs, and material from other sources needs adaptation before it can be used in schools. But in the case of school economics there is an added difficulty. Good micro-economic case studies, if they are to excite the interest of boys and girls, should relate to current and local problems. They will differ from region to region of the country, and from rural to urban areas. This means that the burden of their preparation and documentation must fall upon the teachers of an individual school or group of schools in a small region. This is not equally true of macro-economic or even more general industrial case studies. But the problem of the preparation, adaptation and circulation of material remains. This is a field in which we believe that the *Economics Association*, as representing those who teach economics in schools and further education, could beneficially play an active role.[1] But there are not inconsiderable costs in providing what we regard as a very necessary service if the teaching of economics in schools is to be improved. We would regard the provision of such teaching material as comparable in importance in the field of economics to the provision of chemicals or materials for the teaching of science and as having comparable claims on public or other funds.

[1] The *Economics Association* is already active in providing assistance to teachers. We would draw attention to two of its recent publications: *An Annotated Bibliography of Economics Education, 1945–1971*, compiled by P. S. Fowler, R. H. Ryba and R. Szreter, 1972; *An Economic Book List for Schools and Colleges*, compiled by S. Anthony, 1972.

45. There is, moreover, a natural but perhaps paradoxical consequence of the need to stimulate pupils' interest through their concern with topical events and the analysis of problems relating to them. Material that possesses this property very quickly goes out of date, even though the problem for analysis is almost timeless. This means that the material, or the book if it is in that form, needs constant revision and renewal. This requires to be recognised and facilities created, perhaps again through the *Economics Association*, to meet the need.

46. Quite apart from these problems of supply and circulation of material there are problems for teachers involved in its preparation, use and incorporation into a teaching programme. Some of us have had experience in recent years of the experiment in the teaching of Business Studies in schools and have been impressed by the extent to which the many obstacles to teaching a new subject have been overcome through collaboration in preparation of material, joint discussion of teaching experience and problems and provision for assistance and advice to teachers beginning to tackle the problems. We believe that somewhat similar provision for joint discussion and learning by the experience of others will be desirable and that the various bodies concerned with teacher training should give more consideration to the need to provide in-post training in this respect as well as in others that we shall discuss later.

47. Any discussion of greater use of the "heuristic" principle inevitably raises the question of the place that performance in a project should play in the final assessment of a candidate's total performance. We shall discuss this problem more fully at a later point when we come to methods of examining. We would stress that a capacity to identify for himself the best way of tackling a problem and to criticise what others may be doing in this respect is one that it is most important to instil into any student of economics and that its testing should be one feature of any good examination system.

48. These improvements of teaching methods and facilities are desirable whatever syllabus is to be taught. The syllabus that we are suggesting differs from those that have been in use in recent years principally in its emphasis on the importance of numeracy and the inculcation of capacity to handle, interpret, and if necessary adapt quantitative evidence. If, as we assume, this is both taught and examined (as it should be) at the level to which any student who has qualified in O-level mathematics can reasonably be expected to advance, this should not in our view represent a new and much more difficult hurdle inserted into the economics curriculum. Experience with teaching such numeracy and quantitative methods in the experimental A-

level course in Business Studies has shown that the great majority of students can and do succeed without great difficulty in learning them.

49. Nor do we believe that the syllabus presents grave difficulties from the teaching point of view. Such statistical methods as we are suggesting for inclusion in the syllabus are well-known to and within the normal teaching compass of almost all those who have graduated in recent years after three years of studying economics in a British university. Other teachers may find it necessary to rely (as some schools have done in similar cases in the teaching of Business Studies) on some help from mathematical colleagues. But we believe that (possibly with some help from special refresher courses) most present teachers could teach such a syllabus as we have in mind. University experience with similar courses suggests that the elements of quantitative methods are best taught and learned when regarded as an integral part of economics, studied in relation to applications to problems in hand, and taught by working economists in that context rather than as a branch of mathematics.

50. We have necessarily given thought to the expertise of the men and women who teach economics in schools. We are very well aware that a number of them, including some outstanding teachers, have not received formal teaching in economics, but have in effect achieved their own conversion programmes, and have mastered the subject to an extent that enables them to teach economics at A-level. With such assistance and facilities as we are recommending we believe that most of those who have already thus demonstrated their adaptability will have no insuperable difficulty in tackling the type of syllabus that we have in mind. More generally there is some evidence that in the last ten or fifteen years the situation has appreciably improved so far as specialist qualifications are concerned. Cases of economics being taught by teachers who have never studied the subject to degree standard are fast diminishing, though it is a moot point just how well equipped a teacher may be to teach modern economics up to A-level if his final degree examination has included only one or two papers in economics. But even of the teachers who entered the field in the last ten or fifteen years with adequate degree qualifications, only a very small proportion can have received subsequent training in the methods of teaching economics. Until a few years ago, out of some thirty University Departments of Education, there was but one in which economics received as much attention as, say, history or biology. Even today the number here this is the case can be counted on the fingers of one hand.

A few others have made some partial provision for economics. Economics method courses have been provided in recent years in some of the Colleges of Education which have introduced one-year post-graduation courses. Given the recent very high rate of growth of economics as a school subject, we hope that many more institutions of teacher education of all types will give active consideration to their opportunities and responsibilities in the field of economics.

51. In these circumstances the Committee believe that there is already a need—which will be reinforced, if such changes as it suggests in the syllabus and methods of teaching of economics are widely adopted—for increased facilities for the retraining, refreshing and advising of teachers of economics throughout their working lives as teachers. The Committee is convinced that all major institutions of teacher education should include a specialist in the teaching of economics whose concern and responsibilities should include the problems of providing ways in which existing teachers may bring themselves up-to-date, and that all such institutions, as well as university faculties of economics, should be enabled and encouraged to devote some of their attention and resources to this. The Committee would like to see the willingness of a teacher to devote vacations to the improvement of his qualifications as a teacher appropriately reflected (as it is in some countries) in his stipend. It would be wholly regrettable if lack of such in-post re-training facilities or refresher courses should imply that a necessary improvement in teaching had to be postponed a decade or more until a new body of teachers had emerged. In this the Committee believes itself to be very much in line with the thinking both of the James Committee and of the University Grants Committee.

VII. Methods in Examining in Economics

52. The traditions and the relative emphasis of teaching effort are partly determined by the syllabus; a good A-level syllabus is a first necessity. But the traditions and the relative emphasis of teaching effort are to an even greater extent established and modified over the years by the examination papers set. The Committee believes that the time has come when Examining Boards, several of which have recently made revisions of their A-level syllabuses in economics, should look at the recent trends of their new papers, and the effects they are having on the teaching of economics.

53. The papers should clearly be such that they test the qualities in a candidate in economics which it is most desirable to inculcate and that they provide for these incentives both to

teachers to teach them and to pupils to learn them. As this report has indicated, the qualities which the Committee believes to be important and to require testing by any examination are:

(i) a capacity to follow and sustain an economic argument and to make logical inferences from given information;

(ii) a capacity to set out and communicate to others a logical argument in economics;

(iii) a capacity to be aware of assumptions made implicitly in the use of an economic model to assist a process of reasoning and to perceive how a modification of the assumptions might effect the conclusions;

(iv) a capacity to understand the mutual interrelations and interdependencies of the various elements in an economic system and to take account of them in handling economic problems;

(v) a capacity to understand and explain the economic effects of important economic institutions on economic policies;

(vi) a capacity to make appropriate inferences from quantitative data;

(vii) a capacity to apply to an economic problem the models of economic analysis that are most appropriate to it.

54. The traditional method of examining in economics has been by setting a series of essay questions for the candidate to attempt to answer. The virtue of this method of testing a candidate is that it can test both his knowledge and understanding of the ordinary models of economic analysis and his powers of exposition and formulation of a problem in his own words. It is possible to set questions which will demonstrate the candidate's capacity to see how to tackle a problem and to reason out answers in cases where different assumptions will lead to different answers. It is possible to see how far a candidate appreciates the constraints imposed by economic institutions and economic policies.

55. There are, however, considerable difficulties over the conduct of such an examination. With rapidly growing numbers of candidates in economics it is becoming more and more difficult to obtain the services of highly qualified examiners in sufficient numbers at present fees. Examining by this method is, moreover, exceptionally difficult. A candidate is asked to make an exposition of some piece of complex reasoning. His exposition is frequently unclear. It is uncertain whether he has failed in understanding or in exposition, or both. An

examiner's judgement cannot escape being in some measure subjective. Two equally competent and careful examiners may take slightly differing views of the competence of the answer. They may differ in the penalties that they feel should be imposed for lack of understanding and lack of clear expression. Even a careful attempt to standardise marking methods may be difficult of application in practice, though the differences of valuation are seldom large in actual experience.

56. Many experienced examiners would feel that, despite the difficulties that they recognise, this traditional method still represents the best way of testing competence in the whole range of qualities for which one should look in a student of economics and that the likelihood of at all serious error has been greatly exaggerated. The Committee has thought it right, none the less, to give a good deal of consideration to alternative methods of examining candidates, and in particular to the possibilities of applying to economics the system of "objective tests" that have been used in examining some other branches of knowledge, and which are now being used for economics by certain Examining Boards.

57. The Committee has studied a number of test papers prepared for school examinations in economics, and has been considerably impressed by the skill and ingenuity of those who have prepared the tests, and welcomes their employment by certain examining bodies. They retain, however, for the moment doubts and misgivings, and while appreciating the attractions of objective tests as a means of solving some of the problems of shortage of good examiners, they would see dangers in any attempt at excessive reliance on objective tests.

58. In economics it is seldom possible to state one simple answer that is universally true quite irrespective of circumstances, conditions and environments and quite irrespective of political objectives or social value judgments. It is immensely important that a student should be taught to be constantly aware of any underlying assumptions and that he should be tested to see whether he has acquired that capacity. A number of the questions that the Committee has seen would seem to have been open to ambiguity; the right sophisticated answer might have been "alternative (3) is right in these circumstances, alternative (5) is right in these other circumstances." There is the added difficulty that, in such a subject as economics, in which advancement takes the form of debate and argument between different individual economists and "schools" of economists, there may for a time be no single agreed orthodoxy, in the sense that two different "schools," both of them scientific and scholarly, would provide different answers to a question.

Some of the questions we have seen require a candidate to guess whether an examiner is likely to require him to belong, say, to the Keynesian or the Chicago school. That is an impossible and unfair imposition. Questions that may involve this should not be set in an examination in which the candidate cannot argue his reasons for giving a particular answer.

59. What the Committee would most stress is that such "objective tests," if they are to be applied to the examining of economics, require not only to meet psychometric tests of their efficiency in separating out candidates but also individually to meet tests of their validity in terms of economics and collectively to represent a fair balance of the subject. They will need to be prepared with quite exceptional skill and to be criticised very ruthlessly and scrupulously by expert economists, if possible with university teaching experience, who are likely to be difficult to recruit and will need to be paid adequate fees; otherwise there is considerable danger that they will contain ambiguities, concealed assumptions or imposed orthodoxies, and thus penalise certain candidates, who may well be the ablest of the candidates examined, in depriving them of their ordinary freedom to explain why exactly they have reached certain conclusions. A badly set question in an essay-type paper can be answered by an intelligent candidate. A badly set question in an objective test is disastrous.

60. The problems of making economies in examining in this subject are complex: essay questions require a large number of competent markers; objective tests, at the stage of building up a bank of questions, call for an outstandingly able and sufficiently large group of question setters, prepared to give much time and trouble to perfecting their questions. It may well be as difficult to find, recruit and pay these outstanding question-setters as to recruit a sufficient body of competent examiners of essay-type questions. In view of the number of questions suffering from ambiguities or hidden assumptions that have been included in specimen papers seen by the Committee, the Committee thinks the Examining Boards should be more aware of these very considerable difficulties and of the imperative need to overcome them. The Examining Boards should, we believe, be more active in persuading university teachers of economics to associate themselves with the very responsible task of ensuring that the papers set in A-level economics preserve and promote the desirable standards of teaching in the subject.

61. There is an additional difficulty of which Examining Boards should be aware. Objective tests provide in most cases tests of understanding or recall of particular features or definitions of some orthodox and generally accepted analytical

models, of recall of particular characteristics of some economic institution, or of recall of economic data. They are likely, unless prepared with exceptional skill, to provide far less satisfactory tests of capacity to see how to apply economic reasoning to complex situations or to situations in which clear appreciation of the possibly different results of alternative possible assumptions or of conflicting objectives are of the essence of the question. There are some subjects in economics for which it is relatively easy to set objective tests; there are other subjects for which it is very difficult to set them. There are some subjects in which it is easy to compose tests which will effectively distinguish good students and bad students; there are other subjects in which this is again much more difficult. Thus there is danger of imbalance between different subjects in economics and the credit earned for knowledge of them, and danger also that the feed-back from the pattern of the examination to the balance of the teaching may prove undesirable for the general improvement of teaching.

62. If we may revert to the criteria that were set out in paragraph 53, an objective test can test (i) outstandingly well. It may succeed in testing (v) to some extent. It is likely to test (iii), (iv), (v) and (vi) less well than a well-set paper of the essay-type questions. It is markedly less successful in testing (ii) and (vii). It is for these reasons that the Committee believes that an objective test is best incorporated not only with an essay-type paper but also with a test of (vii)—capacity to tackle a problem—in an examination, and feels serious doubts about the wisdom of depending heavily on objective tests.

63. The important capacity (vii), to apply to an economic problem the models of thought that are most appropriate, is best acquired and demonstrated by an attempt to tackle a chosen and individual problem in some depth in the form of a "project." Experience in other subjects has, moreover, shown that "project" work is likely to yield considerable "spin-off" of practical understanding over a wider field than that of its immediate context. In economics there is more latitude than in some subjects in the choice of suitable projects. While first-hand field-work has a considerable educational value, there is no general reason why first-rate "projects" should not be prepared on the basis of secondary material, and especially statistical or historical material, that can be made available in a library.

64. The Committee believes that this application of the "heuristic" principle is in itself so potentially valuable in the teaching of economics that schools should not hesitate to make

use of it, even if the Examining Board that serves them makes no provision for the examination of the "project." But they are convinced that—despite difficulties of examining which they recognise—Examining Boards should make provision in economics, as they have in a number of other subjects, for candidates to submit, be partly tested by and receive some credit for a "project." The Committee itself would be glad to see an Examining Board make projects in A-level economics at least optional.

65. We come finally to the question of the balance and subject matter of papers. The Committee has been greatly impressed by the skill of the examiners for the different Boards in setting papers that have reflected changes in the theoretical interpretation of different aspects of economics as the subject has developed and thus keeping abreast of changing ideas in economic theory.

66. None the less the Committee believes that certain recent trends require reconsideration and should be modified or reversed. First, over the years there would appear to have been a growing emphasis in papers set by some Examining Boards on economic institutions, often examined as if there was importance in knowledge of the recent performance of these institutions for its own sake and not as a factor modifying in some way the working of the economic system. We believe that this emphasis on recall of the detail of institutions has been carried too far, if we may judge from some of the recent papers of these Examining Boards.

67. Second, and as another aspect of the same issue, while we recognise the value of contemporary phenomena in stimulating the interest of candidates, we think that questions which are primarily concerned with recall of phenomena which are best regarded as ephemeral and to be forgotten, rather than with the economic principles and trends which they may exemplify, are not desirable. While they may reasonably be regarded as testing the interest of the candidate in contemporary phenomena we think that they have an undesirable effect on what it is thought necessary to spend time in teaching.

68. Third, we greatly doubt the pedagogic value of asking elementary students, even though they may feel interest in them, questions on how to solve one or other of the vast problems of economic policy which confront the world—how to stop inflation or to improve the balance of payments for example. Those of us who have read answers to such questions are well aware that candidates find themselves out of their depths, and the better the candidate the more conscious is he that the problems do not have answers at the superficial level that are

independent of political assumptions and of the practical possibilities of changing national or international institutions.

69. Fourth, we think that Examining Boards should be more careful to ensure that papers shall not contain questions which are only answerable on the basis of acceptance of some unstated value judgment or political preconception. Can there, for example, in an objective test, be a single and unambiguous answer free from all value judgments regarding social objectives to some such a question as: "If a local authority is losing money on its bus services, which of the following actions should it take: (1) increase fares for rush-hour travellers? (2) increase or reduce fares for off-peak travellers? (3) withdraw fare concessions to old-age pensioners?"

70. In more general terms we suggest that Examining Boards in assessing the suitability of a particular set of papers, should give more thought to the broader questions: Do the papers reflect the balance of qualities which they wish to see taught in the schools? In particular, do they reflect the desirable balance of knowledge and recall of factual detail on the one hand and of analytical capacity and of capacity to handle and interpret data on the other hand? None of the recommendations made in this report will get very far in the schools unless the Examining Boards show the right response and initiative.

ILLUSTRATIVE SYLLABUS FOR A-LEVEL ECONOMICS

Introduction

The purpose of this syllabus and the examination based on it is to test the candidates in all the three major fields of knowledge and skill that together form the principal constituents of economics:

(1) a capacity to understand and apply the principles upon which a modern economy works;

(2) a general understanding of some of the more important institutions within which the British economy operates and their economic effects upon its operation;

(3) a capacity to handle, interpret and present the quantitative evidence on which economic decisions are reached.

Candidates will be expected to show competence in all three fields.

I. The Principles upon which a Modern Economy Works

In this field the purpose will be to test the candidate's understanding of simplified but rigorous models of a modern economy designed to demonstrate such major principles and aspects of economic study as:

(1) the logic of choice in terms of opportunity cost and the marginal principle;

(2) the logic of specialisation and trade in terms of comparative advantage;

(3) the partial analysis of supply and demand in a single market;

(4) the determination of the rewards of factors of production;

(5) the general analysis of aggregate national income, expenditure and activity.

The candidate will be expected to show understanding of the mutual inter-dependencies of the economic phenomena here

represented and of the extent to which statements which may be true of small components of a large aggregate may not be true of the large aggregate itself.

II. Economic Institutions and their Effects upon the Working of the Economy

(1) Institutions which in general improve the working of markets: commodity markets; capital markets; the monetary and banking system and its control by the Bank of England; foreign exchange markets; labour exchanges; advertisement of goods, vacant posts, etc.; their effects upon the best use of economic resources; the effects, good and bad, of speculation in markets.

(2) Institutions created by the Government to provide common services: public utility services; roads and transport facilities; local authority services; health, education and other social services; the financing of and methods of paying for such services and the relation of such services to the economy.

(3) Institutions which have the purpose of modifying the workings of a market economy: trade unions; employers' federations; private monopolies; their possible effects, good or bad, upon the best use of economic resources and the distribution of incomes.

(4) Institutions and legislation designed to restrain the opportunities of individuals or institutions to exploit the community: the monopolies commission; the industrial relations legislation; incomes policy, etc.

Candidates will be expected to show understanding of the ways in which institutions affect the working of the economy rather than precise detail about the workings of individual institutions.

III. The Handling, Presentation and Interpretation of Quantitative Data

In this field the purpose will be to test the candidate's understanding of the nature and limitations of the data on which economic decisions must be based, and of the more elementary ways in which such data can be handled and presented so as better to permit interpretation and comparison.

(1) Understanding of the general characteristics of the main sources from which economic data are obtained: the imperfections and margins of error of data.

(2) Problems of measuring change: measurement of

price changes; measurement of real changes; time series; difficulties caused by seasonal or climatic variations and methods of eliminating them.

(3) Problems of measuring the average level and the distribution of some phenomenon.

(4) The logical problems of the use of economic data to interpret causal relationships: the simpler methods of attempting this, scatter diagrams, lines fitted by inspection (but *not* the detailed techniques of calculating regression); the validity of such operations and the limitations of the inferences that can be made.

(5) The use of appropriate techniques for handling problems of different kinds. The presentation of quantitative data: the use of graphs, tables, frequency distributions in summarising and organising data.

The purpose in this field will be to test the candidate's ability to interpret quantitative data and to apply to data such simple methods of adjustment and analysis as will make it possible to extract from the data a maximum of information. It will not require mathematical analysis or special facility in computation.