Higher Education in Bulgaria: a Review for the Ministry of Education and Science

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Part 1: Key Findings

Introduction

1. Bulgaria has made progress in reforming its structures and institutions since 1989. The pace of reform needs to accelerate as it prepares to join the European Union in 2007. Among the key institutions that have been identified for reform is the higher education sector, where Europe itself is undergoing significant change in its structures. This report evaluates the Bulgarian higher education system in this context, and will be followed by recommendations for an action plan to address the issues that have been identified.

Autonomy and governance

2. **On the face of it Bulgaria's universities enjoy a substantial amount of autonomy,** in comparison to both the EU and other OECD countries. **Despite this, they remain subject to some very detailed controls,** and there must be a concern that these may inhibit the ability of universities to respond flexibly and rapidly to market conditions. **The development of good market information, to replace central control, is an important priority.**

3. However, in a number of key respects, Bulgarian universities lack the framework to exercise the autonomy that they have, and this needs to be addressed if autonomy is to be used to full effect and for the benefit of the nation.

4. In particular, they have not replaced state controls with mechanisms for ensuring governance that is likely to be good for the university in the long run and for society as a whole. **To have as the ultimate authority of the university a body that comprises very largely the staff of the university, is to ensure that universities will be run very much for the benefit of their staff, not for the wider group of stakeholders or for Bulgarian society as a whole.**

5. **Related to this is the position of the Rector, and the way the Rector is appointed.** It is extremely unsatisfactory to have this important role filled by people who owe their allegiance entirely to the academic electorate, whose management experience may be very limited, and who know that they will return to join their former colleagues in the academic common room on expiry of their term of office.

6. **The Government should consider whether to make the granting of further autonomy to universities contingent on reform in these two vital**

areas, and also contingent upon universities ensuring that they have available the skills and expertise needed to run such complex enterprises.

Structure of the Bulgarian higher education system

7. Overall, **Bulgaria is characterised by the small average size of its institutions**. This is hugely wasteful of resources that could be used for the benefit of students and staff more generally.

8. Two approaches are available to the Government to address this issue. They can either provide incentives to institutions themselves to rationalise their provision, with the intention of merging sooner or later; or, following strategic review, they could require institutions to merge.

Funding

Funding levels

9. **Compared to other countries, at 0.6% of GDP, public expenditure on universities is low**. Other countries, both those with higher and lower levels of GDP, invest more in their higher education systems, and it is important that Bulgaria regards higher education as a public investment and invests in it to the best of its ability.

Student fees

10. It is important that Bulgaria **increases the level of the student fee**, but also that it **introduces mechanisms for ensuring that students from poor backgrounds are not disabled from going to higher education** because of the cost. A student loan system is one way of achieving this, but needs to be constructed in such a way as to ensure that it is affordable to the student and also that the state gets its money back. A careful study will need to be carried out, building on previous work, if Bulgaria chooses to go down this road.

The use of funds

11. In many ways, **the funding that is provided at present to Bulgarian universities is not used optimally**. In particular **there appears to be a large degree of overstaffing**; and it appears that **substantial sums are consumed in maintaining a larger number of small institutions than is necessary**.

12. The funds that are devoted to these two characteristics of the Bulgarian system could be used better for the benefit of the staff and students in universities

and of the system as a whole. It is inevitable, if taxpayers and students are to be asked to pay more, that they will expect the universities to make the most efficient use of the funds that are provided.

Funding method

13. The way the money is provided to universities can be an important mechanism for achieving the Government's aims, and **the present arrangements are certainly an improvement on the previous method, and represent a step towards performance-based funding**, which can be a powerful tool to change behaviours and provide incentives to universities to do so.

14. **What is now required is a competitive element in the funding** - that possibly grows stronger as the market mechanism grows stronger - while at the same time encouraging and **enabling those universities that are weak to strengthen either organically or through reorganisation**.

Student numbers

15. A modern, knowledge based, economy needs an adequate supply of highly skilled people. The conclusion of this review, backed up by a substantial amount of comparative data analysis set out in the appendices, is that it is a high risk strategy to aim to accept a reduction in graduate output. **The supply of places should be increased, and there are good reasons for believing that student demand will grow**, despite the downturn in demography that Bulgaria will experience over the next decade or two.

Staffing

16. **An immediately striking and remarkable feature of the Bulgarian higher education system is the very low student to staff ratio**. With about 220,500 students and 22,500 staff, the student:staff ratio is almost exactly 10:1, which is extremely low compared with other countries, and is wasteful of resources which could be used elsewhere in the university system. Moreover staff are very unevenly distributed between subjects, and this needs rationalizing.

Pay

17. **It is important that means are found to improve academic pay**, and the solution to this problem is, of course, closely connected to the resolution of some of the other issues considered in this report – a reduction in overstaffing, reducing the number of small institutions, and increasing the funding available to universities.

Staff age profile

18. The Bulgarian academic profession is an ageing one, and concern is often expressed about this, and about the fact that there is inadequate new blood coming into the profession to ensure its health and renewal. However, **comparison of the Bulgarian academic workforce with that of other countries suggests that it is not unique with regard to its age profile**, and that perhaps the extent of the problem is overstated.

Pedagogy

19. **The oversupply of staff leads to a certain style of pedagogic approach** which involves teachers teaching and learners taking notes, at the expense of a student pedagogy which develops independent thinking and autonomous study.

Subject balance

20. **There does indeed appeared to be a discrepancy between subjects studied by Bulgarian students and those in other countries**, and it is legitimate for the state to be concerned about this. As the problem is primarily one of student demand rather than supply, any government measures should be aimed at stimulating demand.

21. Besides any direct action which the government might take to stimulate demand, in a market economy the best way to ensure that students are attracted to the subjects that the economy needs, and that universities offer those subjects, is to **ensure that good market signals are provided, and that information is available to students** as they make their choices.

Relevance of courses and curriculum

22. **Industry should be involved with universities** to help them identify courses, curricula and pedagogic approaches that will be of most value. Mechanisms should be developed for this, both locally and nationally, **as well as the incorporation of an element of work experience into academic courses**, and the Government and universities should consider how this can be achieved.

Structure of degrees

23. In Bulgaria two thirds of Bachelors graduates go on to a Masters qualification. This is a very high proportion. Also, **Bulgaria stands aside from most other countries implementing the Bologna structure in the fact that it has a 4-year Bachelors and a 1-year Masters, whereas most have a 3 year Bachelors**. The

resources that a 3-year Bachelors qualification would release for use elsewhere in the higher education system would be substantial. It may be too late, but this is something that Bulgaria may well wish to reconsider.

"Specialist in" qualification

24. **The "specialist in" qualification needs rationalisation**, and three outcomes seem possible: the qualification could be discontinued; it could translate into a Bachelors course; or it could be designated a lower-level, and shorter, qualification carrying, say, 120 ECTS points, which will enable the holder formally to transfer to a Bachelors course. The last approach is being adopted in many other European countries with similar "sub-degree" qualifications

Lifelong learning

25. In the context of the commitment of the Bulgarian Government to lifelong learning, the higher education system is still based on a traditional elite system catering for young full-time entrants, and **the Government should consider whether to use the funding mechanism to encourage universities to make provision for lifelong learning**.

Quality assurance

26. There is a temptation on the part of evaluation agencies all around the world to base their judgements on inputs and to a lesser extent on processes, whereas what is really important in making judgements about quality is the quality of the outputs and the outcomes. In future **the NEAA should focus on the outcomes of the programmes it evaluates**, and it should consider how to go about this.

27. **The NEAA will need to collect information - including comparative information - and publish it in a systematic way** to enable students and stakeholders more generally to be well-informed about the choices they make and confident in the quality of the institutions that they choose.

Higher Education in Bulgaria: a Review for the Ministry of Education and Science

Part 2: Main Report

Introduction

1. Bulgaria has made progress in reforming its structures and institutions since 1989. The pace of reform needs to accelerate as it prepares to join the European Union in 2007. Among the key institutions that have been identified for reform is the higher education sector, where Europe itself is undergoing significant change in its structures, with the adoption of common patterns and practices, following the Bologna agreement.

2. As it has reformed its higher education system over the past decade, Bulgaria has been assisted by at least three major reviews, and has benefited from two higher education Acts, with numerous amendments. However, there has been a lack of stability, with each Act in some key respects challenging the basic assumptions and reforms of the other. One of the key objectives of this present review is to compare aspects of the Bulgarian higher education system with that of other EU countries, and the new Accession Countries[1] in particular, to identify those areas where reform might most be needed and most importantly, to recommend an action plan for taking forward those reforms.

3. This review takes it as a given that academic freedom, in the sense of the freedom of academics to pursue their research and teaching freely and without the constraint of some orthodoxy or other political interference, is a right and a feature of academic life to be cherished and nurtured. What it does not take as a given is that academic freedom and academic autonomy are the same thing. Academic autonomy is different from academic freedom as described above. It is the freedom of universities as institutions to govern themselves independent of interference by the Government of the day. Nor is it assumed that academic

[1] The accession countries are those countries which joined the EU in 2004: Hungary, Poland, Slovakia, Czech Republic, Slovenia, Estonia, Lithuania, Latvia, Malta and Cyprus

autonomy requires the academic community of scholars to be the supreme authority in a university. On the contrary, academic freedom flourishes if universities are well-managed and prosperous, and a finding of this review is that more robust governance and management arrangements are needed in universities precisely to allow the academic community to prosper.

4. In the course of this review, a number of key concerns have been identified where it is suggested that reform is more or less urgently needed. This part of the report identifies and discusses these. This is followed by an action plan for undertaking the most important reforms. What this report cannot do is to prescribe in detail how the reforms should be implemented, but it will point the direction that needs to be followed, identify the issues that need to be addressed and suggest a timescale and a process for addressing them.

5. The areas which have been identified as needing scrutiny are:

- Autonomy and governance
- The structure of the higher education system
- Finance and funding
- Student numbers
- Staffing
- Pedagogy
- Quality

6. Of course, many issues arise in more than one category, but for convenience, this report is ordered, and the issues that arise are discussed, under the above headings.

7. A higher level question which arises in relation to a number of these issues concerns the balance between a controlled system and one which relies on the market for its regulation. For the most part, the answer to this is clear enough - but as will be seen, the answer is often also quite subtle, and it cannot be assumed that in all cases the market can be allowed to operate without control.

Autonomy and governance

8. Until 1989 the university system in Bulgaria, like so much else, was closely controlled, and universities were part of the state apparatus and were subject to detailed control and regulation from the centre. One of the first acts of the Government that followed the 1989 changes was to introduce an Autonomy Act which removed most of the controls under which universities worked previously, without putting much in their place. Since then the succeeding legislation has changed the balance between control and freedom, and the university system has been subject to a degree of instability in this respect. That is understandable, as the disadvantages of the different approaches were experienced, but what is badly needed now is a period of stability which enables universities to exercise the maximum degree of self rule and to identify their own futures, in a way which is compatible with the interests of the state.

9. Autonomy is not a good in its own right. It is not self-evident that universities should be autonomous any more than schools or any other institution largely funded by the state. The main and the best justification for autonomy is that it is effective. By and large, academics and academic managers know better than civil servants and politicians how to enable their university to be successful. On the other hand, it does not follow that the sum of the interests of autonomous universities equates to the interests of the state, and for that reason, if no other - and there are others, as is discussed below - a balance needs to be established between the autonomy of universities and the degree of control that the state exerts.

10. It is useful to think of autonomy as having three dimensions - there are of course other ways of considering the question, but these three provide a useful framework:

- Autonomy over management and governance

  for example, whether universities own their assets; who has ultimate control over the mission and strategic direction of the university; who appoints the Rector.

- Autonomy over academic matters, including programmes and curriculum:

  for example, whether the university has the power to decide what programmes to run; the curriculum for these programmes; what programmes to close and which programmes to open; what teaching method to adopt, what students to admit, and so on.

- Autonomy over financial matters

  for example, if universities are free to spend their income as they decide, and not according to budget items set by the Ministry; the ability to raise their own income and spend it is they decide; the ability to build up reserves; the freedom to borrow money; the freedom to decide how many students to admit and how much to charge them as fees.

11. Against the majority of these dimensions Bulgaria scores relatively highly:

- Public universities can own their own assets (although they do not, in fact, own the majority of their buildings – those that they inherited from the state) and can decide for themselves on key issues concerning the future direction of the university. The ultimate authority of the university is the Academic Senate (or in formal terms the General Assembly) and universities appoint their own Rectors without any interference from the state.

- Until recently, the position on programmes and curriculum was less clear, since the state required that all programmes offered be approved by being registered in a State Register. It also required that universities adhere to centrally prescribed controls over things like the number of contact hours and the content of the programme. Such detailed control ran the risk of inhibiting innovation and responsiveness to changes in the market and student demand. Since 2002 that has changed, and universities are free to start their own programmes, and they are not bound by any State Requirements concerning the content of the curriculum or the pedagogical approach[2].

- As far as financial controls are concerned, universities enjoy a fair amount of freedom. They receive funds from the Government as a block grant, which they are free to spend as they wish (that is in contrast to many systems around the world where they receive line item budgets which require them to spend fixed amounts on different items); they are free to raise their own funds and spend those as they wish without limit. Moreover, they enjoy the freedom, which many universities in other countries do not, to carry forward money from one year to the next and to borrow money. But they are tightly constrained by the Ministry as regards the number of students that they can recruit. This control over student numbers is understandable, since the number of students in the system has major implications for public expenditure, but it is a constraint on autonomy nevertheless. And the level of fee that can be charged by public universities to undergraduate students is controlled by the state as well, though again in this respect in Bulgaria is no different from other countries - in virtually no country does the state give public universities a free hand in deciding on the level of the student fee. As far as postgraduate students are concerned, Bulgarian universities are in fact free to set their own fees beyond the small number of places provided by the Government – a freedom not available to universities in all other European countries.

[2] Except in a small number of 'regulated professions'

12. On the face of it then Bulgarian universities appear to enjoy a substantial amount of autonomy. This is confirmed when looking at an OECD review which compared a number of higher education systems and the autonomy that they enjoyed. Below is a table from the OECD publication (Education Policy Analysis, 2003) which identifies a number of features which define the degree of university autonomy, and assesses for a number of countries where each sits in these terms.

	Own their buildings and equipment	Borrow Funds	Spend budgets to achieve objectives	Set academic structure/ course content	Employ and dismiss staff	Set academic salaries	Decide size of student enrolment	Decide level of tuition fees
Mexico	√√	√	√√	√√	√√	√	√√	√√
Netherlands	√√	√√	√√	√	√√	√√	√√	√
Poland	√√	√√	√√	√√	√√	√	√√	√
Australia	√√	√	√√	√√	√√	√√	√	√
Ireland	√√	√	√√	√√	√√	√	√√	√
UK	√√	√	√√	√√	√√	√√	√	√
Denmark	√	√√	√√	√	√√	√	√√	√
Sweden	√	√	√√	√√	√√	√√	√	
Norway	√		√√	√√	√√	√	√√	
Finland	√		√√	√	√√	√√	√	
Austria	√		√√	√√	√√	√√		
Korea			√	√		√	√√	
Turkey				√	√		√	
Japan				√	√			

Legend – Aspects in which institutions

√√ *Have Autonomy*

√ *Have autonomy in some respects*

OECD (Education Policy Analysis, 2003)

13. Bulgaria was not one of the countries reviewed, but if the autonomy of Bulgarian universities is assessed against these criteria the Bulgarian system would probably look as follows:

	Own their buildings and equipment	Borrow Funds	Spend budgets to achieve objectives	Set academic structure/ course content	Employ and dismiss staff	Set academic salaries	Decide size of student enrolment	Decide level of tuition fees
Bulgaria	√	√√	√√	√√	√√	√√	√	√

14. So it will be seen that Bulgarian universities appear on the face of it to enjoy a considerable amount of autonomy, and sit fairly well among OECD comparators. Unfortunately, a similar analysis has not been done of EU countries nor the Accession States in particular, but there is no reason to think that those countries enjoy more autonomy than the OECD as a whole, and therefore it is reasonable to conclude that Bulgarian universities are at least as autonomous as most in the EU, and probably enjoy more autonomy than many.

15. Despite this generally favorable picture, Bulgarian universities remain subject to some very detailed controls, and there must be a concern that these may inhibit the ability of universities to respond flexibly and rapidly to market conditions. For example, the law on scientific degrees and titles gives the State – through an appointed institution -the power to decide on the titles of members of the academic profession, and the criteria for conferring these titles. This is an extraordinary function for a central body in a decentralized and largely autonomous university system, and it seems an anomalous power to retain when so much else – particularly the control over State Requirements – has been relinquished.

16. Similarly central government decides not only how many students each university may recruit, but also the number of students in each subject area. To control the number of students may be necessary for the control of public expenditure; and control by the Government of the number of places provided in each subject may not seem an unnecessary control to a government that is

concerned about whether the university system is producing graduates in subjects that the economy needs. This is considered later in the report - but it remains an area where the Ministry exercises detailed control over what universities do. And the law also prescribes the detailed organisation that a university must have – for example its division into faculties.

17. In a market economy, it must be presumed that the market will do some of the things that at present are done by legislation. However, there are strong views among some in Bulgaria that the market may not be effective because of its immaturity and in particular because of the inadequacy of the information that is available to inform the market. Certainly, for the market to work well good information is needed as a mechanism to counter market failure, and at present in Bulgaria market information is not good. So some of the controls that the Government exerts (for example specifying the degree titles and the length of course) may be justified on the grounds that if these things were not controlled then the market would not be able to distinguish between products with the same title but with rather different content, process, etc. That may be the case, but if so, then an important priority must be to ensure that the market is better informed in the future, to enable this sort of control to be reduced. However, that can only remain a longer-term aspiration. Some controls will continue to be needed in the foreseeable future, in order to protect the 'consumer's' interests.

18. So, there remain areas of detailed control to which universities in Bulgaria are subject, some of which are needed, and some of which are unnecessary, or will certainly be unnecessary in the future. What is needed for the present is to establish what areas the Ministry needs to control and what can safely be left to universities. In general, the role of the Ministry should be to set a national strategy for higher education, and to regulate universities to exercise autonomy in a responsive and responsible way. It should try to ensure that the market can work as well as possible, and be prepared to step in to correct market failures. This will require a subtle blend of skills and approaches on the part of the Ministry and its staff.

19. In many respects, though, some of the conditions for autonomy are not met. Autonomy without a proper infrastructure, or without the framework or mechanisms for exercising it, risks serious damage to the system. It is not an absolute good. In a number of key respects, Bulgaria lacks the framework for the exercise of full autonomy, and this needs to be improved if autonomy is to be exercised to full effect and to the benefit of the nation.

Management

20. A university is a complex and often large enterprise, and requires the full range of management skills in order to be run successfully. These include, for example, financial, personnel, estate and strategic management capabilities. One of the early mistakes of the post-1989 legislation was to grant so much autonomy to institutions which lacked the management capabilities to exercise it, and this was a recipe for doing more damage than good. Universities need urgently to review the management skills at their disposal and to ensure that those that are lacking are made good; and the Government needs to ensure that they do so.

Governance

21. Universities in Bulgaria have moved away from a position where they are controlled by the Government, but they have not replaced that with a mechanism for ensuring governance that is likely to be good for the university in the long run or for society as a whole. To make the ultimate authority of the university a body that comprises very largely the staff of the university, is to ensure that universities will be run very much for the benefit of the existing staff, which is incidentally also a recipe for inertia and conservatism. There is no one model of governance that is correct, but it is clear that the present arrangement is potentially very damaging indeed, particularly when coupled with the degree of autonomy that universities currently enjoy, let alone the increased autonomy that they may enjoy in the future.

22. Related to this is the position of the Rector, and the way the Rector is appointed. Universities, as has been mentioned, are serious and often very large-scale enterprises, with a turnover in some cases of more than €25 million per year.

The Rector is effectively the Chief Executive of a large corporation. Running a university is a serious management business. If universities were not autonomous, and all effective decisions and their management were in the hands of the Government, that would be another matter. That is not the case, and it is extremely unsatisfactory to have this important role filled by people who owe their loyalty entirely to the academic electorate, whose management experience may be very limited and will often not be the basis of their appointment, and who know that they will return to join their former colleagues in the academic common room on expiry of their term of office.

23. This is not, of course, to deny that some Rectors are extremely effective, and provide outstanding leadership – some are very impressive indeed. But many others – perhaps the majority – regard themselves primarily as academics, and managers only to a limited extent, as a secondary function. This is not the basis for strong leadership and management, where difficult decisions need to be taken by capable managers, nor for ensuring that universities are well-managed institutions.

24. This points to two important areas for reform: University governance needs to be brought up-to-date, and bodies created with the ultimate responsibility for governing universities that are independent of the state but also independent of any one group within the university. They should, of course, include representatives of academics and students, but these should be a minority. The majority of the governing body should be representative of the wider group of stakeholders with an interest in the success of the university. The other reform that is needed is that Rectors need to be made far more professional, and the best people appointed capable of managing complex institutions – in many cases these will not come from within the existing academic body of the appointing university. If these two conditions were met, the Government could much more confidently allow universities even more autonomy than they enjoy at present – for example the ownership of their buildings and other assets at present owned by the state.

Accountability systems

25. The quid pro quo of autonomy is accountability, and the more autonomy that universities have in Bulgaria, the more it will be essential to ensure that good systems of accountability are in place. This accountability has a number of dimensions. First, universities that receives substantial funds from the state are accountable to the state to show both that the money has been properly used, and also that it has been well used. It is therefore entirely reasonable - indeed it is proper - that universities should be subject to some sort of audit and should account for their use of the money they receive, not just from the taxpayer, but more generally. Universities may be independent of the state, but they should nevertheless be answerable to the Bulgarian people. They need also to be accountable for the quality of what they do, and that is something which falls to the NEAA to ensure, and that is discussed more fully below. Finally, particularly if universities are to be autonomous and reliance is to be placed on the market rather than detailed Ministry control, then it is essential that universities produce good information to ensure that the market is as well-informed as it needs to be in order to be able to make good choices.

Structural issues

Size of universities

26. One striking feature of the Bulgarian higher education system is the large number of institutions relative to the size of the country, and the very small size of a good many of these. Indeed, overall, Bulgarian higher education is characterised by the small average size of its institutions – 17 have fewer than 1000 students and 32 have fewer than 5000 students. In itself, there need be nothing wrong with small size, but small size carries certain implications:

- Small institutions carry a relatively high overhead cost - they have many of the same infrastructure features as other institutions, but they have a smaller student base to pay for these. That means either that they are expensive or

that they have less resources to spend on teaching, research and student support than larger institutions.

- They are able to offer only a limited academic coverage. This may mean limited subject coverage, or in any particular subject area this may mean limited options, or more often both.

27. It needs to be borne in mind though that small size is not in itself always to be rejected. It is quite common in many countries to have small music academies, for example, devoted to the preparation of practising musicians. Indeed other countries have small non-specialist institutions as well. What is unusual in Bulgaria, if not unique, is that such a high proportion of the total number of institutions should be so small. That only seven of the 51 higher schools in Bulgaria should have more than 10,000 students is unusual, and suggests that there is room for a considerable amount of rationalization and an improvement in the efficient use of resources and also in the quality of what students receive.

28. The problem of the proliferation of small universities has been recognised by both government and institutional leaders. The problem has been to do anything about it. Vested interests and the political difficulty of forcing closure or amalgamation on unwilling institutions has meant that the present unsatisfactory situation has not been addressed. Two approaches are available to a government that would want to address this issue:

- Use funding levers to provide incentives to small institutions themselves to rationalize their provision (or disincentives to continue as they are);

- following strategic review, to require institutions to merge.

29. There are examples of both approaches from around the world, and indeed incentives have unsuccessfully been used in Bulgaria before. Australia and South Africa are examples of countries which both enforced mergers by government action despite considerable opposition from the universities concerned. Not all of

those mergers have been successful, but for the most part they have. Nevertheless, forced mergers are less likely to succeed than the merger of willing partners. The problem is that it is relatively rare to have willing partners. In part, this is an issue of governance: where academics themselves are the supreme authority in a university, they are less likely to be able to take an objective view which may run counter to their personal interests

Private universities

30. Another distinct feature of the Bulgarian higher education system is the extent of private provision. This is not unique by any means, nor is the extent of private education in Bulgaria particularly great compared with some others (many of the former Soviet states have much higher rates of private education). But in terms of the old European Union countries this is unusual, and represents both a potential strength and a possible weakness for Bulgaria. Of the six private universities and eight private colleges three would be among the top 10 of the public universities by size. All the others, bar one, are very small, with fewer than 1000 students.

31. Demand for private universities is high in Bulgaria – and is still growing despite the plateau in demand for public universities - and such demand is generally taken to be indicative of an inadequacy of public provision. However, this is not a reason to substitute public for private provision. Private universities can be useful both as a way of increasing private investment in higher education as well as providing competition and innovation. It may also be because private universities will take students who are unable to secure entry elsewhere – which is not the negative point that some may take it to be. So long as the quality of provision can be assured – for which mechanisms exist and must be strengthened – then they have the merit of adding to the highly qualified manpower of Bulgaria without cost to the public purse.

32. However, the private universities give rise to concern for a number of reasons, but most particularly relating to their quality. There is concern that the small size of most of them means that they are unlikely to be able to give a broad curriculum. There is also a widespread feeling that they admit students who might not be able

to gain admission to a public university. Further, there is a strong and justified belief that they depend on the public sector and are indirectly subsidized by the taxpayer - in as far as they hire staff who are already employed in public universities - while giving nothing to the public sector in return. It is certainly true that a comparatively small number of teaching staff in private universities are on permanent contracts.

33. Against this, the private sector has many strengths:

- First, it needs to be borne in mind that the private sector, no less than the public sector, is extremely heterogeneous. The larger universities in the private sector can undoubtedly hold their own as regards their quality against the public sector institutions.

- Second, when demand was growing fast and supply was constrained in the public sector the private universities provided a valuable mechanism for soaking up some of the unsatisfied demand. It remains a valuable function that, because of the nature of their provision or because of their more liberal entry processes, they may attract and enrol students who would not wish or would not be able to gain entry into public universities. So long as they make provision that is high-quality and with acceptable standards, this is a plus, not a minus.

- Finally, because of their more flexible management and staffing arrangements - the corollary of the fact that they have relatively few permanent staff - they are able to be much more flexible than public universities and respond flexibly to market and student demand.

34. To the extent that they compete unfairly with public universities because of their dependence on the public universities to meet the overheads of the staff whom they employ casually without such overheads, this is something that could be dealt with pragmatically - perhaps through the fiscal system (with private universities being required to make a contribution to the overhead costs of public

universities whose staff they employ). It is not an argument against the private universities in principle. It could be, as the supply of public university places increases and if student demand reduces, that demand for the private universities will reduce and that only the higher quality and larger universities will flourish.

35. The question for the Government now is whether any closer regulation or control is needed, and there seems no reason for this: if the quality assurance arrangements are robust and work well (which is an issue that is not self-evident), then that should be sufficient. The situation should be watched, and if it is found that the private universities give rise for concern in the future, then new arrangements will need to be considered.

Colleges

36. The final structural issue that has arisen in the course of this study concerns the nature and status of the colleges which offer the "specialist in" qualification, but which do not extend to Bachelors degree level study. There are two main concerns about these: first, there is concern that the “specialist in” qualification is not one which is valued by the market and that the purpose of these colleges is therefore ambiguous. The second concern is that the “specialist in” qualification does not fit into the structure of the new European framework which Bulgaria has adopted, and is therefore anomalous for that reason too. These questions are discussed further in the section on pedagogy. Here it is sufficient to say that the situation is unsatisfactory and does need resolution. The colleges need to be given a distinctive role (more distinctive than at present) or they need to be rationalized and merged with other institutions.

Finance

37. There are three broad issues related to funding. The first concerns the absolute level of funding provided for higher education in Bulgaria, and its source (i.e. whether from the taxpayer, from the student or from other sources); the second

concern is how well those resources that are available are used; and the third concerns the method by which state funds are allocated (i.e. the funding method).

Level of funding

Public funding

38. At Appendix 1 are tables that show how Bulgaria compares with other countries in terms of expenditure on higher education. The proportion of GDP devoted to higher education reduced through the 1990s, and although the decline has halted, it is apparent from Table 1B that the proportion that Bulgaria spends is well below that of all other EU member (and candidate) states, including those recently entering the EU - and others in the OECD. Table 1A shows per capita funding as a percentage of per capita GDP. This table does not show a calculation for Bulgaria, but data provided in 1999 (JJ Brunner, 1999) suggest that , at 21 per cent, on this measure too Bulgaria was well below other countries, including some which were not as well developed. The figure is unlikely to have increased in the meantime. It is, of course, true that expenditure on higher education has to be considered alongside the demands of other public services, but it is vital that the state invests in higher education to the extent that it is able, because by and large - and subject to what is said below about optimizing the use of resources - a high-quality higher education system is likely to be a well funded one. At present, on the face of it, public investment is too low.

Student fees

39. The resources needed for a well funded higher education system are unlikely to be able to be provided by the state alone, and it has become clear to an increasing number of countries around the world that the cost will need to be shared between the beneficiaries of higher education: the state benefits from a highly educated workforce and so should contribute, but so should the students themselves. Quite apart from the pragmatic need to secure additional resources for higher education, there is also a point of principle involved here. For the most part, those who go to university obtain substantial benefit through their working

lives from having done so – on average they will earn more (probably very much more) and they will experience much less unemployment, and so on.

40. It is increasingly regarded as right that the beneficiaries of higher education ought not to rely on the majority of the population who do not benefit, but should make some contribution themselves. This has been accepted already in Bulgaria - and in the course of this study, surprisingly little opposition was encountered to tuition fees in principle (including from students themselves). At present students pay a fee which is calculated as 30 per cent of the cost of tuition though there is disagreement over whether the calculations of cost are accurate. At all events, the level of the fee is relatively low, and ranges from €100 to €150 for a Bachelors course and from €100 to €200 for a Masters course. It needs to be noted that until 1999 universities could admit students beyond their state quota who paid full cost, and about half of all students were admitted in that way. And even now, universities may charge full cost for masters courses, and 80 per cent of masters students are paying. This seems to indicate that the cost of education is not, at its present levels anyway, a deterrent in Bulgaria.

41. Table 2 of Appendix 1 shows that there is no universal tuiton fee for full-time undergraduates in any of the former ACs at present. However, with the exception of Poland, Slovenia and the Slovak Republic, each one of the central European former ACs charges tuition fees for all full-time undergraduate students over a given Government quota of subsidised places. A student that does not get a state subsidised place pays a fee for their HE, as was the case in Bulgaria until 1999.

42. Not only do a significant proportion of students within the former ACs make some sort of financial contribution to their HE but, for those countries for whom data were available, the level of fees were comparable to tuition fees in some of the EU 15 countries (for example in the Netherlands). For example, in Hungary, for those students that pay tuition fees they are between €350 and €2600 a semester. In Lithuania, for the students that pay tuition fees the charges are between €300 and €2000 a year.

43. Fees in Bulgaria are very low, and the policy aim ought to be to increase them. However, in terms of future changes to fees in Bulgaria, international evidence needs to be interpreted very carefully. Experience in the Australia, Canada, New Zealand (DfES, 2004), and the UK (HEFCE unpublished, 2002), as well as recent studies in the United States (Long, 2003), suggest that changes to fee arrangements have had little impact on participation rates in HE. Many countries have experienced increases in participation rates despite increases in tuition fees. Whether it is reasonable from this to infer that changes to fee arrangements are unlikely to have a significant impact on demand for HE in Bulgaria is a different matter. All that is known in the countries in question is that *at the levels charged, and relative to total family income*, fees have not deterred students. At these levels student demand has been relatively inelastic in the countries concerned. But that is not to say that demand is inelastic at all levels of fee. It is a reasonable hypothesis that at some point – presumably when fees account for a sufficiently high proportion of family income - then student demand will be affected. And the level may well vary from country to country depending on local attitudes and expectations.

44. There is no doubt that some level of fee – higher than the current level - will need to continue to be charged in Bulgaria: that is the direction that most other university systems are going in Europe, and the funding needs of Bulgarian universities will require this[3]. The challenge will be to establish a level that will not be counterproductive, and also to find the optimal mechanism for charging fees, and for their repayments.

45. The way forward for Bulgaria, as with other countries, will be for students and the taxpayer to share the cost. But if students are to pay a larger fee, it will be essential to ensure that no student is unable to attend university because of their inability to pay. A student loan system is one way of achieving this, but needs to be constructed in such a way as to ensure that it is affordable to the student but also that the Government gets its money back. The present loan system in Bulgaria

[3] Even countries like France and Germany, where fees are not charged, the responsible Governments have recognised the desirability of such developments, and have even attempted to introduce them. They failed because of the lack of political will.

relies on private finance, with the state subsidizing part of the interest-rate. That might well be the best approach – it has not been possible within the scope of this study to examine this question in detail. However, in general it is fair to say that it is a pragmatic and progressive policy to secure whatever payment it is possible from those who can afford it up front, and from those who cannot afford to pay in advance to make higher education free at the point of use, but to require them to pay subsequently as they go through their working lives, through the tax system or otherwise. A careful study will need to be carried out if Bulgaria chooses to go down this road, for example to satisfy the Government that the tax system will enable it to recover its money.

Optimizing the use of existing resources

46. Whatever the level of funding – but particularly where funds are limited – it is essential to use the money available as well as possible. In many ways the funding that is provided at present to Bulgarian universities is not used optimally. In particular, other sections of this report identify that there appears to be a large degree of overstaffing – and over-teaching – in universities in Bulgaria; and also that substantial sums are consumed in maintaining a larger number of small institutions than is necessary. The funds that are devoted to these two characteristics of the Bulgarian system could be used better for the benefit of the staff and students in universities and of the system as a whole. It is inevitable, if taxpayers and students are to be asked to pay more, that they will expect the universities to make most efficient use of the funds that are provided.

Funding mechanisms

Performance-based funding

47. The way money is provided to universities can be an important mechanism for achieving the Government's aims. Until the recent past Bulgaria, in common with most other university systems, simply funded by a system of "deficit" or historic funding, basing next year's funding on the funding received in the previous year and taking into account the cost of universities' inputs. That has been amended to

fund universities to some extent on the basis of performance - and the system at present depends on the number of students the university has recruited in different subjects, with more expensive subjects funded at higher rates than cheaper subjects. This is certainly an improvement, and represents a step towards performance-based funding, which can be a powerful tool to change behaviours and provide incentives to universities to do so.

48. Performance-based funding can be a powerful tool for influencing the behaviour of universities. It can also be dangerous, and a Government implementing such a system needs to be extremely careful first to identify the behaviours that it wishes to encourage - for example a closer attention to employability, or greater responsiveness to market demand, or the encouragement of universities to raise external funds, or to recruit students from minority groups. All these, and other behaviours is can be stimulated by changes to the funding method (assuming that appropriate indicators can be collected and calculated)

49. The second danger of which a Government introducing performance-based funding needs to be aware is the possibility that a performance incentive may give rise to unintended consequences (for example in England an incentive to produce more high-quality research gave rise to an unwelcome explosion in journal articles, and the neglect of other academic activities). The other issue with performance-based funding is that it may simply reward those who are already good and do damage to those who are weak and need to be nurtured. Especially in a developing system, any system that rewards good performance needs to be balanced by mechanisms to enable those who are weak to become strong.

50. Despite these caveats, the new funding mechanism is a welcome step in the right direction and needs to be developed further. For this the Government will need to consider the behaviours it wishes to encourage, the indicators which are needed to enable it to identify these, and the funding formulae or other mechanisms which will deliver its aims.

Competitive funding

51. In the course of this review the view was strongly expressed by a number of key stakeholders to the effect that the funding of universities should be more competitive than at present. According to this view, even with the changes in the funding method which provide less of a guarantee of funding than previously, there is still too little incentive for universities to be attractive to students. With the Government dividing the number of student places between universities, even those institutions with poor quality, or which have not modified their curriculum to be attractive to students, could be reasonably confident of receiving funding.

52. An extreme version of a competitive funding arrangement would be to provide a “voucher" to each qualifying student and to let them decide where they go and therefore which universities receive funding. Universities would be constrained by the capacity of their buildings and equipment as to the number that they take, but the most popular universities - and in a perfect market, therefore, those which offer the highest quality and the most attractive courses - would be able to grow, and the corollary would be that those that are poor quality, unattractive to students and provide courses which are not in demand, would wither.

53. The disadvantages of a purely market-based and competitive funding system are serious:

- The rise and fall of universities would be in the hands of student fashion.
- Similarly, fashionable subjects come and go to some extent, and a purely market-based approach would be vulnerable to this. There would be no guarantee that subjects that are important to the country would be allowed to flourish.
- Weaker universities would weaken further and eventually die in an unplanned way, not only possibly damaging Bulgaria's higher education infrastructure, but with serious consequences for the students studying at those universities.

54. The supporters of a competitive, market-based, approach counter the second objection by suggesting that the number of vouchers provided for each subject should be controlled by the Government. This suggestion would make a voucher-based approach almost impossible to devise. A system would need to be created to decide which students were able to receive vouchers in the controlled subjects, and what would happen if those with a voucher in a controlled subject were rejected by their preferred university but were offered a non-controlled place at that university, and so on. It is also logically difficult to argue in favour of what would be in global terms an extreme form of reliance on the market while at the same time distrusting the market to work in a crucial respect.

55. More generally, supporters of the competitive funding approach argue that the concerns about fashionable subjects and unjustified damage to universities would not be valid if good market information were available and students were making their decisions on the basis of this. However, until there can be confidence that good market information is available and that students can make their choices on a rational basis, it might be dangerous to rely so largely on the market to allocate funding. And given the political difficulty that has apparently prevented action to force mergers and closures of small and weak institutions in the past, it seems highly likely that there will be strong political pressure to intervene and prevent any universities weakened by the workings of the market from suffering unduly.

56. On the other hand, it is undoubtedly true that injecting competition into funding and forcing universities to be responsive to the marketplace would be a powerful tool in modernizing Bulgaria's university system. What is required is a competitive element in the funding - that possibly grows stronger as the market mechanisms grow stronger - while at the same time encouraging and enabling those universities that are weak to grow stronger either organically or through reorganization.

Student numbers

57. A modern knowledge-based economy needs an adequate supply of highly skilled people - that much is a truism recognised by governments across the world. Appendix 2 contains an extensive analysis of student numbers in Bulgaria, and compares these on a number of dimensions with other EU states (both established and recent accessions). The “right” number of students for any country requires a balance between what can be afforded to ensure and maintain a high-quality system, the availability of suitable high school graduates, the willingness and structures to provide lifelong learning (and the demand for this), etc. Nevertheless, the conclusion of this analysis – discussed more fully in Appendix 3 - is that it is a high risk strategy to aim, as is apparently the current policy in Bulgaria, to accept a reduction in graduate output.

58. As far as student numbers are concerned, while it is true (Table 8 of Appendix 2A) that Bulgaria has a higher percentage of its population in university than a number of other states (though a much lower percentage than the EU on average), the trend in all other countries - despite reductions in their young populations in some cases similar to that being experienced in Bulgaria - is to increase student numbers and graduate output substantially, just when Bulgaria has experienced a sharp reduction, and is contemplating a further reduction in the number of undergraduates.

59. One possible benefit that would arise from a reduction in student numbers in Bulgaria might be to ensure adequately funded and high-quality universities by concentrating funding. But to achieve this at the price of reducing the flow of highly qualified manpower into the economy risks an increasingly uncompetitive economy, which would be a serious matter for Bulgaria as it enters the EU. The aim should be rather to increase – or at least maintain - graduate output while ensuring better resourced universities, through a combination of better use of existing funds (through more effective resource allocation as well as more efficient pedagogic approaches - both of which are discussed in this review) as well as increasing the gross amount of funding both from the state if possible, and by diversifying the

sources of funds (most particularly from students themselves - discussed in the preceding section).

Demand

60. As is apparent from figures 11 and 12 in Appendix 2B, Bulgaria has lower high-school graduation rates than almost any other of the new Accession Countries. This is both a challenge and an opportunity. In general, university participation depends on high-school graduation, and without improvements in performance at school, student numbers in university are unlikely to increase. On the other hand, this does suggest that if school performance improves to the level of other EU states – and there is no reason why should not - then experience everywhere else is that with appropriate supply side policies this latent demand can easily be translated into actual demand.

61. Another reason for thinking that demand need not be a problem is the imbalance that exists at present between male and female students (see Appendix 4). This is a phenomenon that Bulgaria shares in common with most other countries in the world, both developed, developing and those in transition, but as can be seen from Figure 20 of Appendix 4, this phenomenon is particularly marked in Bulgaria, where nearly twice as many girls as boys achieve a general upper secondary education qualification. This imbalance is potentially serious for economic reasons (female graduates are on average less economically active and productive than male graduates throughout a working lifetime), but it also means that when males increase their propensity to attend university and graduate at the same rate as females (and there is no reason in principle why they should not do so in due course) then this will represent a substantial increase in demand.

62. A further reason why there may be potential for demand to increase substantially lies in a fact that Bulgaria shares in common with most other countries, namely that higher education participation tends to be highly skewed towards those from better off backgrounds. Against this, must be set the fact, heard a number of times in the course of this study, that the highest birth rates are found at present in the poorest and least well educated sections of society, which

are the ones whose children are least likely to continue their education. Nevertheless, as wealth increases and is better distributed among the population, then in Bulgaria, as in other countries, the pool of those most likely to demand higher education will increase in parallel.

63. Concern is often expressed that the quality of students has reduced and that students are being admitted to higher education that ought not, and who would not have been admitted in previous years. This concern is echoed elsewhere in the world, and is a particular issue where, as in Bulgaria, there are concerns about the quality, value and utility of what this wider group of students receive. In general, such concerns are mainly expressed by people who have yet to come to terms with the implications of the knowledge economy. It is true that as universities admit students with a wider range of ability the average ability must necessarily reduce. But the best remain as able as they were, and what is happening is that those with lower ability are being more highly educated than would once have been the case. What is important is not to stop them receiving a high level of education, but to ensure the quality of what they receive.

64. In conclusion, therefore, there are good reasons for believing that Bulgaria should not be expecting to cut down the size of its higher education system - on the contrary, it should be seeking to increase the output of highly qualified manpower. Mechanisms for doing so while maintaining, and improving, quality are discussed later in this report. Supply should be increased, and there are good reasons for believing that demand could stay strong and could grow, despite the downturn in demography that Bulgaria will experience over the next decade or two, if the conditions are put in place to enable this. Most importantly, this improving scenario depends on improved performance – particularly by boys – in upper secondary school.

Equity and widening participation

65. In Bulgaria, as in almost every country in the world, there is a serious social imbalance between those who participate and those who do not participate in higher education. Generally, those who participate are from better off backgrounds

and are already part of the social elite. This restriction on the people who benefit from university education is serious not only for social reasons, but for the well-being of Bulgaria as a whole. For Bulgaria to thrive in a competitive knowledge-based economy it is essential that it benefits from the abilities of all its population. It will suffer competitively if it is not able to identify and exploit the abilities of all its most able citizens, whatever their social backgrounds.

66. In Bulgaria, as in most other countries, the most serious impediment to widening participation in higher education is performance in school, where those who are least well off are least likely to succeed. For this reason, action to widen participation and broaden the social spectrum of those who succeed in higher education lies elsewhere, not in the higher education sector. Nevertheless, there are certainly some elements of the higher education system – for example the process for examination and selection for entry to university—which have an impact on the ability of everyone to achieve their maximum potential, and it is important to review these impediments and reduce them as far as possible. In particular, there seems no good reason why the Matura examination has not yet been widely accepted to replace the individual examinations of universities. Whatever will be lost by doing so will surely be offset by the benefits that will arise from simplifying the admissions system and making higher education more accessible to young people from a wider range of social backgrounds.

Staffing issues

67. Consistent with the high degree of autonomy enjoyed by Bulgarian universities, they have a high degree of flexibility with regard the employment and deployment of staff. The university employs staff, and is responsible for whom they employ and whether to dismiss them, and in particular whether staff who have reached retirement age should be kept on. Universities themselves are responsible for deciding how much staff are paid and for their deployment.

68. Despite the flexibility that universities have to manage and deploy their staff - which are the largest and most important assets that universities have - there are three problems relating to the staffing of Bulgarian universities.

Overstaffing

69. An immediately striking and remarkable feature of the Bulgarian higher education system is the very low student to staff ratio. With about 228,500 students in 2003-04, and 22,500 staff, the student:staff ratio is almost exactly 10:1, which is extremely low compared with other countries. The average student:staff ratio for the OECD as a whole is 16.4:1, and while this information is not held systematically for other EU states there is no doubt that Bulgaria's is one of the lowest, by some margin. In some ways, this might be an indication of high-quality, but it has two serious negative consequences.

- First, it represents an opportunity cost - manifested in low salaries and poor facilities, which are a consequence of a substantial part of the resources available being used to employ high numbers of staff.

- Second, it leads to pedagogic approaches that may not be in the best interests of students.

Extraordinarily, in 2003-04, when the student numbers reduced by 2,000, academic staff numbers increased by 1,500.

70. It needs to be recognised, however, that overstaffing is not general across all subjects. In general, it has arisen because some subjects like the physical sciences have experienced a sharp reduction in student demand without commensurate reduction in the staff available to teach these subjects. On the other hand, there are other subjects which are greatly in demand - like economics and law - where student:staff ratios of 40:1 are apparently to be found. What is important is that university managers have not taken steps to rationalize this situation, although certain levers are in their hands to enable them to do this. For

example, it is common when staff reached the age of 65 for Rectors to agree to requests to be allowed to continue in employment, although they are entitled to decline such requests. No doubt this is as much because of humanity (pensions are not high) as inertia and weak management, but the effect on the university system is serious and negative.

Pay

71. Academic staff in Bulgaria are not well-paid, and this is the cause of a number of problems. First, it is difficult to persuade the best students to pursue an academic career given that they could in almost all cases earn substantially more if they did other jobs. It is remarkable that despite that some excellent students choose to continue at university and enter the academic profession. The second problem is that, in order to earn a better living, many academics "moonlight" by working in other educational institutions or undertaking other paid work, thus reducing their commitment to their university and, for example, their ability to undertake research. It is important that means are found to improve academic pay, and the solution to this problem is of course closely connected to resolution of some of the other issues considered in this report – reduction in overstaffing, and increasing the funding available to universities. With a senior professor paid more than three times a junior lecturer, resolution of the question of staffing levels would enable the pay of junior staff to be increased without increasing the overall pay bill.

Age profile

72. The Bulgarian academic profession is an ageing one, and concern is often expressed about this, and about the fact that there is inadequate new blood coming into the profession to ensure its health and renewal. However, comparison of the Bulgarian academic workforce with that of other countries suggests that it is not unique in this respect, and that perhaps the extent of the concern expressed is overstated. Indeed, Figure 21 in Appendix 5, which looks at the UK, USA and Australia as comparators, suggests that Bulgarian academics are not on average as old as American academics, and not greatly out of line with those of the UK and Australia. That is not to say that this is not an important issue and one that needs

to be watched. And if action is taken, as it ought to be, to reduce the size of the academic profession, this provides an excellent opportunity to adjust the age profile. But in itself it does not appear that the age profile is a major issue in Bulgaria compared with other countries. It would, however, be a serious issue if, because of low pay and for other reasons, the academic profession became so unattractive it was unable to attract younger entrants. There is no evidence that this is the case.

Pedagogic issues

Over-teaching

73. As is mentioned in the previous section, the student:staff ratio is very low in Bulgaria on average, compared with other countries. In part, this is because of the decline of some subjects without a commensurate decline in the number of staff to teach them, while other subjects actually suffer very unfavourable student: staff ratios. In part, it is because the previously centrally determined curriculum and course content required very high student: staff contact hours, which itself led to the need to employ large numbers of staff.

74. The consequence of such high levels of staffing is in part financial - money that could be used to provide better salaries and better facilities is being used to employ staff unnecessarily - but it is also pedagogic. It leads to a certain style of pedagogic approach which involves teachers teaching and learners taking notes, at the expense of a student pedagogy which develops independent thinking and autonomous study, which are considered to be more effective and appropriate in producing the sort of mindset which will be required in the 21st century. Other than in a small number of "regulated profession" subjects there are no longer central requirements of the sort that led to this overstaffing in the past, and universities need to address the issue of over-teaching urgently. And in particular, they should consider whether it is really necessary to stipulate in the contracts of staff how many student contact hours they need to have each year. This may be thought necessary to ensure that staff who may not be fully motivated because of poor pay

to give full attention to their duties in the university. But on the other hand, this itself is likely to be one of the causes of over-teaching, as staff fulfill their contracts by engaging in student contact that may not be pedagogically necessary

75. There is one qualification to this conclusion of over-teaching, and that is that in situations where students have no access to sources of information other them professors lecturing - i.e. where libraries and other information facilities are inadequate - then over-teaching becomes endemic because it is the only way that students can learn. In general, that is not the case in Bulgaria.

Subject balance

76. The Government is concerned about the balance of subjects taken by Bulgarian students, and the utility of much of what they study. Figures 22 and 23 in Appendix 6 show the balance of subjects studied in Bulgarian universities, and compare these with other countries in the EU. The most striking thing about these is the very high proportion studying social sciences (nearly half, compared to about 30 per cent on average in the rest of the EU). And consequently a relatively low proportion are studying science, maths and computing.

77. There does indeed appear to be a discrepancy between subjects studied by Bulgarian students and those in other countries, and it is legitimate for the Government to be concerned about this. The question that needs to be addressed is whether any action is needed to redress this balance, and if so what sort of action is likely to be successful. The Government's response has been to control numbers by subjects in each institution, which it does each year when it allocates numbers and grant to each university. That is an entirely supply side reaction, whereas the problem is as much to do with student demand as it is with the willingness and ability of universities to provide places in subject areas which the Government believes are necessary.

78. A more radical approach, which has been suggested, would be only to provide Government subsidies in the subjects which the Government considers are desirable (that is to say to require students to pay full cost in other subjects and not

to provide any government maintenance grants or loans). It would of course be possible to go some way along this road without removing subsidies entirely from students taking other subjects; or a more positive approach would be to offer scholarships to students studying the subjects which the Government wanted to encourage. And such approaches would have the merit of working on demand rather than supply; and if the market works reasonably well then universities will be motivated to respond by offering places in the subjects concerned, or they would find they had no students.

79. There would be problems with such an approach:

- First, the Government would need to identify the subjects which it wished to encourage.

- Second it would need to find a way of ensuring that the courses that universities offered in the approved subjects did not simply carry titles that made them eligible for the subsidy but in effect covered quite different ground.

- Third, it would need to monitor the situation very closely to ensure that the university marketplace did not become badly distorted because of oversupply and over demand in some subjects while other subjects which were not on the favoured list lost their appeal.

80. But it is nevertheless an approach worth considering, perhaps in a modest way to begin with, and coupled with a more competitive and performance-based funding system, which would encourage supply side correction.

81. In a market economy, the best way to ensure that students are attracted to the subjects that the economy needs, and that universities offer those subjects, is to ensure that good market signals are provided, that information is available to students as they make their choices, so that they know, for example, about salaries and unemployment levels for graduates in different subjects and so on. It is

essential for this and for other reasons that good information is collected about these issues and is communicated widely so that students can make well informed choices.

Industrial relevance

82. The important role that industry can play in ensuring that universities produce graduates that are more valuable to the economy is well understood, but in most countries it has proved difficult to get an informed and useful input from industry. It is, nevertheless, important to try, and structures are needed at both national and local levels to ensure that employers have an input into what universities provide and how they provide it.

83. This can be a delicate issue. It would be natural for academics to be resistant to the involvement of industry in what might be considered professional matters, but universities must for their own sakes be responsive to the needs of their stakeholders, and universities themselves will benefit if they produce graduates that society values. It is quite true, and universities must insist, that it is not their job to produce oven ready graduates for industry, but to produce graduates who can think and whose minds are developed in a way that enables them to apply themselves analytically to problems, with a knowledge base on which they can build throughout their working lives. These are the skills that a modern university must provide in a modern economy, where specific, subject based, knowledge is often less important than these more generic skills. Nevertheless, the involvement of industry to help universities to identify courses, curricula and pedagogic approaches that will be of most value will be a valuable development, and mechanisms should be developed for this, both locally and nationally.

84. One approach that helps to break down the isolation of universities from the world of work is to incorporate an element of work experience into academic courses. This is reasonably straightforward in practical subjects like engineering, but there is no reason why periods of work experience should not be a feature of other subjects too, although they may not be so integrated into the curriculum. Experience elsewhere suggests that it can be difficult to persuade industry to offer

placements even where universities are keen to have such work experience incorporated in their courses. This is something that needs to be settled at a local level rather than nationally, but the Government should find ways of encouraging universities and industry to come together to do this.

Degree structure

85. To its credit, Bulgaria has been an early adopter of the Bologna three-phase Bachelors/Masters/Doctorate structure, having previously had a two-stage structure with the Masters studied over five years followed by a Doctorate over three. However, as in other countries that have changed to the new structure, in many ways, initially at any rate, the change was more apparent than real, and it remains the case that the Bachelors qualification is not regarded widely as a qualification that new undergraduates aim at, nor is it generally regarded as a valuable higher education qualification in its own right.

86. This attitude is changing - and it needs to change. In Bulgaria something like two thirds of Bachelors graduates go on immediately to a Masters qualification, and study for five years consecutively. This is a very high proportion, and it can readily be seen that a student who leaves university after 5 years has consumed 66 per cent more resources than one who leaves after 3, and 25 per cent more than one who leaves after four. It is true that the majority of these students are self-financing and not subsidized by the state, but the resources they consume represent an opportunity cost. It will take time to change attitudes, so this is not perhaps surprising - other countries have experienced the same phenomenon - but a change of attitude is essential if advantage is to be taken of the new structure. But a change in attitude requires industry and society more generally to regard the holder of a Bachelor's qualification as being suitable for employment. This is something that is not in the hands of universities alone to deliver.

87. One way of viewing the new structure would be for the Bachelors degree to be regarded as a general qualification covering the subject studied in a fairly general way, for the Masters to be more specific, with the Doctorate a very specific research based qualification. However, in the United Kingdom and the United

States, in fact, the Masters has developed in a more flexible way, often providing specific skills and professional knowledge in one year for those whose Bachelors qualifications were in other subjects.

88. In one respect, Bulgaria stands aside from most other countries implementing the Bologna structure: it has a four-year Bachelors and one-year Masters, whereas the Bologna process allows 3+1 and 3+2 as well as 4+1, and the great majority of European countries have opted for the 3+2 model. If, as is intended, the Bachelors qualification provides a viable and accepted entry point into working life, then the resources that a 3-year Bachelors qualification releases for use elsewhere in the higher education system are substantial. It may be too late, but this is something that Bulgaria may well wish to reconsider. There seems no good reason why it should stand apart from the rest of Europe in insisting on four years as a Bachelors qualification rather than three: and this is very expensive, at a time when Bulgaria should perhaps be using its resources better.

The "specialist in" qualification

89. The "specialist in" qualification which is awarded in colleges stands apart from the Bologna framework, and is an awkward feature of the Bulgarian higher education system. It appears to serve as a way into higher education for those who did not achieve sufficiently well at school to enter a Bachelors degree, yet it is regarded as higher education.

90. It is not clear what purpose the "specialist in" qualification serves. It does not appear in general to be particularly valued in the job market, but at the same time, and perhaps for this reason, the majority of students with the qualification proceeds to a Bachelors degree course. Some have to join the second and others the third year of the course, so taking five or six years to achieve a Bachelors qualification. In some ways, this can be regarded positively - if in the “specialist in” qualification takes not very well qualified school leavers and enables them in due course to proceed to a degree, then it is a mechanism for adding to the stock of Bulgaria’s highly qualified manpower. On the other hand, it is a very resource intensive way of enabling students to achieve Bachelors qualifications.

91. With the European Credit Accumulation and Transfer (ECTS) scheme, there is no reason why an interim qualification should not exist that carries a certain number of ECTS points, which students could carry to a Bachelors qualification. However, that is not how the "specialist in" qualification is designed and regarded, and it undoubtedly needs rationalization. Three outcomes seem possible from any rationalization:

- The qualification could be closed down
- The qualification could be translated into a Bachelors course
- The qualification could be designated a lower-level, and shorter, qualification carrying, say, 120 ECTS points, which will enable a holder of the "specialist in" qualification formally to transfer to a Bachelors course. This is an approach being adopted in other European countries which have "sub-degree" higher education qualifications.

92. If a rationalization was thought desirable, it would be necessary to look at each course and college individually to decide which of the three options should apply.

Lifelong learning

93. It is not easy to compare lifelong learning in Bulgaria with that in other countries, as, unlike the structures for general undergraduate and postgraduate education, structures for the provision of lifelong learning vary greatly between different countries. However, to the extent that the age of undergraduate students may tell something about the take-up of higher education by older people through their lives, it is worth noting the data in Figure 24 of Appendix 7 which show that the limited age distribution profile of HE students is similar to those of the former Accession Countries. In the context of the commitment of the Bulgarian

Government to life-long learning, it does suggest that the HE system is still based on a traditional elite system catering for young full-time entrants. In moving towards a mass system of HE, and one that promotes flexible study patterns for the purpose of encouraging life-long learning, the age distribution profile of HE students is likely to increase towards the levels of EU 15 countries such as Germany, and to a lesser extent the UK.

94. It has been suggested that one of the reasons why lifelong learning has not taken hold in Bulgaria is that universities are not particularly interested or motivated to supply it. So long as they are focused on the traditional Masters qualification and students, then that will remain the case, but if the attitudes and approaches of universities become more entrepreneurial, then that will change. In part, that relates to the general environment in which universities and their staff operate. In part, though, it relates to the incentives that they have, and as the Government reconsiders its funding approach to provide for more competition and encourage more responsiveness on the part of universities, it should consider whether to provide a mechanism to encourage universities to undertake lifelong learning. Assuming that the demand is there – and demand may be a problem, if industry is not itself inclined consistently to update the skills and knowledge of its workforce - universities should be encouraged to see that it is in their self interest to respond.

Quality

95. Before 1989 Bulgaria had a higher education system that had a reputation for high quality, and that reputation remains in the case of a number of subjects and a number of universities. But the system was more elite, and it was relatively easy to maintain a high-quality system in such circumstances. Since 1989 the system has exploded, funding has not kept pace, a number of new private universities have entered the market, and all this has given rise to concerns that quality has been eroded.

96. The response of the Bulgarian Government, in setting up the National Evaluation and Accreditation Agency, is one that is in line with that of most other

countries that have been reforming their higher education systems. In principle, the NEAA, which is charged both with institutional accreditation and programme accreditation has the right functions, and it is going about them in a logical and energetic way.

97. With a reduction in direct controls by the Government – as well as the continuing possibility that new private universities could be established - the function of a quality agency is essential. It should enable the Government to exercise regulation rather than control and more particularly to ensure that market failures are addressed, and it should also ensure that information is provided to students and to society more generally both to reassure them about the quality of provision but also to enable them to make decisions, for example about which university or course to attend.

98. It is essential, therefore, not only that the NEAA does its job effectively, but that there is full confidence in it as it goes about its work. It needs therefore to ensure that those who conduct the evaluations are independent and are seen to be rigorous and objective. To this end it would be helpful - though it would be expensive - to ensure that there were a number of overseas participants in the evaluations, or at least that the evaluators were drawn from a spectrum that went beyond Bulgarian higher education institutions.

99. One comment is possible on the method of evaluation. There is a temptation on the part of all evaluation agencies to base their judgements on inputs and to a lesser extent on processes, whereas what is really important in making judgements about quality is the quality of the outputs and the outcomes. So long as there were State Requirements to be met, it was tempting, and relatively easy, for the NEAA to base much of its judgement on whether these requirements were being met. Now that most of the requirements have been withdrawn, that is no longer possible - and it was never desirable - and in the future the Agency ought to focus on the outcomes of the programmes it evaluates, and should consider how to do this.

100. The NEAA will need to identify performance indicators and develop mechanisms for collecting these and evaluating them. In this it should be assisted

by the work of quality evaluation staff within institutions, some of which are making good progress in collecting student feedback in a consistent way. In fact, student feedback is increasingly being regarded in other countries as an essential feature in quality assurance, and the NEAA should consider how it can be collected and published in a systematic way.

101. Finally, it needs to be borne in mind that a lot depends on the quality Agency in a market system. For the market to work, confidence is needed in the standards of the institutions but also information is needed about quality and standards. The Agency will need to collect information – including comparative information - and publish it in a systematic way to enable students and stakeholders more generally to be well-informed about the choices they make and confident in the quality of the institutions that they choose.

Higher Education in Bulgaria

Part 3:Proposed Action Plan

The main report has identified a number of issues which it is suggested need to be addressed if Bulgaria is to reform its higher education arrangements in a way that will enable it to develop into a successful and modern system. In discussions with Government and a range of stakeholders the issues identified and the diagnosis of changes that are needed have met with a high degree of acceptance. This proposed action plan flows from that, and suggests practical steps that are needed to address those issues and implement those changes.

Item	Issue	Recommendation	Action	Timing
1	The need to ensure progress towards implementation of a complex set of proposals, with an appropriate level of commitment.	The Government should establish appropriate mechanisms to ensure progress towards implementing the agreed proposals arising from this report.	A1. The Ministry of Education and Science should appoint senior project manager, with access to the Deputy Minister, to oversee implementation of the action plan. A2. MOES should appoint an implementation group, consisting of senior experts from across the HE Directorate – chaired by the project manager – reporting monthly to the Deputy Minister on progress towards implementation of the plan.	T1. Immediately T2. Immediately
2	A number of the changes discussed below require a new	The Government should draw up a new Higher Education Bill	The first task of the project manager recommended above	This is the essential precondition to implementation

	legal framework.	in order to implement those changes recommended here which require a change in the law.	should be to set in motion the processes needed to draw up a bill.	of many of the recommended changes, and should be begun immediately, so that the government will be able to make rapid progress following the election.
3	Stakeholders lack information to make good decisions: the market cannot work efficiently without good information. Although universities are subject to detailed control in a number of respects which may seem unnecessary, because of the absence of good market information it is not possible at present to rely on the workings of the market to regulate the system.	Good market information should be developed and published, covering matters such as employment prospects of different subjects in different universities, cost of study, quality of universities and courses, etc..	The Ministry should establish a working group of Ministry, Rectors, the NEAA, students, employers and other relevant stakeholders to agree the information needed and mechanisms for collecting and publishing this.	Immediately, to make recommendations on information needed and mechanisms to collect and publish this, by April
4	To have as the ultimate authority of the university a body that comprises the staff of that university, is to ensure that universities will be run very much for the benefit of their staff, not for the wider group of stakeholders or for Bulgarian society as a whole.	R1. The Ministry should develop models of good practice governance arrangements, which separates academic from administrative governance. R2. The Ministry should require universities to propose new	A1. The Ministry should establish a working group to identify good practice from around the world and publish a framework of acceptable arrangements, seeking the assistance of international agencies if needed (e.g. World Bank, European Union, British	T1. The working group should be established immediately. Studies should be conducted between now and May, with external assistance if necessary. The framework of acceptable governance arrangements should be published by the Government

		governance arrangements, and to implement these when approved.	Council, etc). A2. The new HE Bill should include requirement that universities obtain approval of Ministry for their governance arrangements. Future funding/participation in Government programmes should be subject to this.	by June. T2. a. The new HE Bill, when drafted, should include this requirement. T2. b. Universities should be required to make proposals for new governance within 12 months of passage of the new HE Act.
5	It is extremely unsatisfactory that the position of Rector should be filled by people who owe their allegiance entirely to the academic electorate, whose management experience may be very limited, and who know that they will return to join their former colleagues in the academic common room on expiry of their term of office.	As part of the new governance arrangements recommended above, new arrangements should be developed for the appointment of Rectors. Rectors should be appointed, not elected, and the Rector should be regarded as the chief executive of a major organisation.	The new HE Bill should require universities to make proposals for the appointment of Rectors in future.	There is no reason why in most cases the present Rectors should not be the last elected under the present arrangements. All Rectors from now on should be appointed under the new arrangements following these recommendations.
6	Bulgaria is characterised by the small average size of its institutions, which leads to the sub-optimal use of limited resources.	The Ministry should provide incentives through the funding mechanism for small institutions to collaborate, federate or merge.	The Ministry should modify its funding method to provide disincentives for small size and incentives to collaborate, federate or merge.	The Ministry should begin consideration now with a view to gradual introduction of incentives over the next 2-3 years, alongside developments in the funding method, recommended at

				recommendation 9 below..
7	Compared to other countries, at 0.7 per cent of GDP[4], public expenditure on universities is low.	Bulgaria should be aiming to provide public funds for HE at similar levels of GDP as other EU countries. Increases in funding for individual universities could be made contingent upon the governance reforms recommended in 4 and 5 above.	This is a matter for political decision at national level, and it will require collective decision by the Government.	Increases for Higher Education will be at the expense of other public services, and it may not be possible to introduce them immediately. But they should not be delayed beyond what is absolutely necessary.
8	The cost of higher education should be shared more evenly between the government and the beneficiaries of higher education (i.e. students themselves).	The level of the student fee (tax) is too low, and should be increased significantly. However, any increase should be accompanied by better developed mechanisms for providing loans (credits) to students for the cost of their education, including living costs. An explicit aim of the Government should be to ensure that no person is unable to attend university, because of their financial conditions. This should be possible through an appropriately constructed loan	A1. The new Bill should make provision for the Government to set a more realistic fee level. A2. Perhaps with expert assistance from the World Bank, and building on studies already carried out in Bulgaria, the Government should implement a student loan system, providing for repayments by students when they are in employment.	T1. As the new Bill is drafted, this provision should be included. T2. Studies already exist carried out in Bulgaria. These should be reviewed by an expert group convened by the Education and Finance ministries, so that new arrangements can be implemented as soon as the new Act is passed.

[4] OECD Education at a Glance, 2004. More recent information suggests that this has increased to 7 per cent.

		(credit) scheme.		
9	The new funding method is a great improvement on the previous one, but could be refined to include a competitive element, as well as an element to promote the Government's policies.	The method for providing funds to universities should be developed in such a way as to progressively introduce an element of competition, designed to further Government policies, and greater efficiency. This recommendation should be considered alongside recommendation 6, concerning collaboration, federation and mergers.	Expertise already exists in the Education and Finance Ministries and elsewhere in Bulgaria, which could be drawn upon to develop a performance-funding element into the funding method. If necessary, and with the help of international agencies, this could be supplemented by external expertise. What is essential is to identify the behaviours and policies that it is wished to promote -- for example Federation or merger, reduction in staffing levels, changes in governance, greater responsiveness to the needs of industry, and a reduction in the proportion of Bachelors students progressing immediately to a Masters. Instruments can then be developed in the funding method to incentivise these.	There is no reason why a performance-based and competitive element should not be introduced immediately into the funding method. However: a. Careful thought will need to be given to the policies and behaviours that it is intended to promote, and also to the possible unintended consequences of any performance funding. b. Competition should be introduced over a period of time, to avoid disrupting the system and damaging weak institutions. One approach would be to introduce developmental funding for a few years as competitive funding is introduced.
10	An immediately striking and remarkable feature of the Bulgarian higher education	Incentives should be provided to universities to rationalise and reduce their staffing. The aim	A1. The Government should introduce an early retirement fund, which universities could	T1. A joint Government-Rectors' Conference working group should be established

	system is the very low average student to staff ratio (though in some subjects the opposite is the case). This results in a highly suboptimal use of resources, as well as inefficient pedagogical approaches.	should be, over the system as a whole, to increase student:staff ratios by at lease 50 per cent.	draw on to encourage staff to retire. The Government should consider the terms of this scheme, jointly with the Rectors' Conference. A2. The World Bank should consider whether such a scheme might be the subject of an early loan.	early in the new year, to report by the summer, with recommendations for the terms and conditions of an early retirement scheme supported by the Government. T2. The World Bank should give early consideration to the provision of a loan for this purpose, so that a scheme could be implemented immediately after the report of the working group referred to above.
11	Private universities often compete unfairly with public universities because of their dependence on the public universities to meet the overheads of the staff whom they employ casually without such overheads.	Private universities should be required to make a contribution to the overhead costs of public universities whose staff they employ.	The Higher Education Bill should include this requirement.	This should be incorporated into the drafting of the Higher Education Bill recommended in recommendation 2 above.
12	There appears to be a discrepancy between subjects studied by Bulgarian students and the needs of the economy.	R1. Better market information should be available to students to guide them in their choices of subject (see recommendation 3 above) R2. The funding method	A1. The 'Information Working Group' recommended in 3 above should include information about subject choices and the labour market consequences.	See actions on recommendations 3 and 9 above.

		developed under 9 above should penalise universities which do not respond to student subject demand, and which provide excessively in subjects for which there is declining demand. R3. The Government should consider whether to provide scholarships or other incentives to students to study subjects where demand is weak.	A2. The development of the method for allocating grant to universities, developed under recommendation 9 above, should consider how to incentivise (and penalise) universities in this respect.	
13	Courses and the curriculum are often not in tune with the needs of industry and the employment market.	R1. Industry should be involved with universities to help them identify courses, curricula and pedagogic approaches that will be of most value. R2. Mechanisms should be developed for the incorporation of an element of work experience into academic courses	A1. On a course by course basis, universities and faculties within them should create working groups comprising university staff and representatives of local industry to review the content of courses, and the skills and knowledge they provide. The Government should consider making provision of at least some of its grant to a university conditional upon evidence that such reviews have taken place. A2. The reviews recommended above should include consideration of the widespread	There is no reason why the Government should not notify universities immediately that funding – or at least part of their funding – in 12 months time will be dependent on significant progress having been made in this area, as reviewed by the national steering group.

			introduction of periods of work experience into courses. This will require action by local employers, as well as universities, in order to provide sufficient and suitable places. A3. A national steering group should be established, comprising Government officials, members of the Rectors' Conference, and representatives from industry, whose role it will be to review progress across the system as a whole, as well as progress by individual universities.	
14	In Bulgaria two thirds of Bachelors graduates go on to a Masters qualification. This is a very high proportion, and consumes a very great deal of resources.	Steps should be taken to incentivise students to leave after completion of a Bachelor's qualification, and to work for a period before deciding to take a Masters course.	As performance-based funding is introduced, this should be used to incentivise universities to encourage students to delay continuing to a Masters degree until after a period in employment, and also to discourage universities from providing courses that are not required in the national interest.	Depends on the progress in implementing recommendation 9 above.

15	Bulgaria stands aside from most other countries implementing the Bologna structure in the fact that it has a 4-year Bachelors and a 1-year Masters, whereas most have a 3 year Bachelors.	Consideration should be given to moving to a 3-years Bachelors degree for most subjects.	A1. The new HE Act should permit 3-year (180 ECTS credit) Bachelors qualifications. A2. As performance-based funding is introduced use this to provide incentives for universities to provide a Bachelors qualification after 3 years where appropriate.	T1. The new HE Bill, when drafted, should include this provision. T2. Depends on the progress in implementing recommendation 9 above.
16	It is not clear what purpose the "specialist in" qualification serves. It stands apart from the Bologna framework, and is an awkward feature of the Bulgarian higher education system.	A systematic review should be conduced of each “specialist in” course, to determine whether it should close, translate to a Bachelors qualification, or be designated a lower-level, and shorter, qualification, carrying 120 ECTS points, which will enable a holder of the "specialist in" qualification formally to transfer to a Bachelors course.	The Ministry should establish a committee of senior academics to review each “specialist in” qualification, to determine its future.	Colleges should be given notice of the impending review immediately, to enable them to prepare their case. The review should be carried out over the next 18 months or so.
17	In the context of the commitment of the Bulgarian Government to lifelong learning, the higher education system is still based on a traditional elite system catering for young full-	The Government should consider whether to use the funding mechanism to encourage universities to make provision for lifelong learning.	The development of the method for allocating grant to universities, developed under recommendation 9 above should consider whether to provide incentives to universities to provide for older	Depends on the progress in implementing recommendation 9 above.

	time entrants		students, and lifelong learning more generally.	
18	The process for examination and selection for entry to university has an impact on the ability of everyone to achieve their maximum potential, and it is important to review these impediments and reduce them as far as possible..	The Matura examination should replace the individual examinations of universities	The Rectors' Conference should consider how the Matura can be made acceptable to all universities as a suitable basis for selection of students. It should recommend any necessary changes to the Government.	This is important rather than urgent. The Rectors' Conference should consider this over the next 18-24 months.
19	The NEAA ought to focus on the outcomes of the programmes it evaluates, not inputs or processes.	The NEAA should identify performance indicators and develop mechanisms for collecting and evaluating these. In particular it should consider how it can collect and publish student feedback in a systematic way.	The NEAA should convene an expert group, drawing on existing expertise from within and beyond Bulgaria, to recommend mechanisms for collecting, evaluating and publishing performance indicators and student feedback.	Immediately. This is part of the information critical to the proper working of the market in higher education. This work should be considered alongside the work discussed at recommendation 3 above, into which the NEAA should be fully integrated.
20	Although Bulgarian universities have a high degree of autonomy, there remain a number of detailed controls which the State exercises which seem anomalous and anachronistic – for example the control over academic titles, the	The law on Academic Titles should be repealed, and serious scrutiny should be given to other controls exercised by the state.	The Government should establish a high level working group to recommend further reductions in matters over which the State exercises control over universities. Relaxation of these controls may be made subject to progress with	To the extent that the law would need modifying to implement some of these changes, this review needs to be carried out on a compatible timetable. In other respects, this is not a high priority action, but should be conducted over the next 18

	legal control over the internal organization of universities and the detailed control over the number of students in each subject area that each university may recruit.		governance reform, as recommended at recommendation 3 above.	months.

Higher Education in Bulgaria

Part 4: Appendices

Appendix 1[5]

Expenditure on HE relative to other countries

Table 1A Per capita expenditure on HE as % of per capita GDP

	All tertiary education
	(7)
OECD countries	
Australia	48
Austria	40
Belgium	43
Canada	m
Czech Republic	37
Denmark	49
Finland	42
France	33
Germany	41
Greece	25
Hungary[1]	55
Iceland	26
Ireland	34
Italy[1]	33
Japan	42
Korea	42
Luxembourg	m
Mexico	47
Netherlands	45
New Zealand	m
Norway	36
Poland[1]	35
Portugal	29
Slovak Republic	47
Spain	35
Sweden	56
Switzerland[1]	67
Turkey[1]	m
United Kingdom	40
United States[2]	63
Country mean	**42**

[5] Note: in this and other technical appendices the data shown are for the most recent years available. However, in some cases recent data are not available, and in such cases the conclusions need to be treated with some caution.

Argentina	32
Brazil[1, 3]	m
Chile[4]	71
India	89
Indonesia	49
Israel	54
Jamaica	217
Jordan[1]	m
Malaysia[1]	131
Paraguay	77
Peru	81
Philippines	43
Thailand	31
Tunisia[1]	68
Uruguay	26
Zimbabwe[4]	m

Source: OECD Education at a Glance 2004

Table 1B % of GDP spent on higher education

	Total public expenditure on education as % of GDP, at tertiary level of education (ISCED 5-6)
European Union (25 countries)	1.1
European Union (15 countries)	1.1
New Member States (CZ, EE, CY, LV, LT, HU, MT, PL, SI, SK)	1.0
Belgium	1.4
Czech Republic	0.8
Denmark	2.7
Germany (including ex-GDR from 1991)	1.1
Estonia	1.1
Greece	1.2
Spain	1
France	1.0
Ireland	1.2
Italy	0.8
Cyprus	1.2
Latvia	0.9
Lithuania	1.3
Hungary	1.1
Malta	1
Netherlands	1.3
Austria	1.4
Poland	1.1
Portugal	1.1
Slovak Republic	0.8
Finland	2.1
Sweden	2.1
United Kingdom	0.8
Norway	1.9
Bulgaria	0.6
Romania	0.8
Turkey	1.2

Table 2 Fee arrangements in each of the ACs

Country	Tuition Fee	Tuition fee if over gov't quota of subsidised places	Registration Fee	Entrance exam fee	Contribution to student org/ student services/medical care costs	Fee for evening classes only	Comment
Poland						X	
Czech Republic		X*		X			Free in state HEIs. Fees charged by 24 private HEIs
Hungary	*	X					Tuition fees introduced '96 and abolished '98
Bulgaria	X						
Slovak Republic	*				X		Proposals to introduce tuition fees under discussion
Lithuania		X *			X		About 30% pay fee.
Latvia		X					
Slovenia		X *					Free in state HEIs. Fees for private HE and all part-time and postgrads
Estonia		X					
Cyprus			X *			X	some HEIs
Malta						X*	Part-time students pay fees

Source: European Society for Engineering Education (SEFI), www.ntb.ch/sefi/ for table see http://www.ntb.ch/SEFI/milestones/TABLE%206.rtf

Note: This table is from 2002. No comprehensive data source has been located more recent, and this is a changing environment, so the information may be out of date. Attempts are being made to update it with information from the individual countries concerned.

Appendix 2A

Past trends and Present numbers

Existing HE numbers

1. In 2003-04 there were approximately 228,500 higher education (HE) students in Bulgaria. Figure 3 puts this figure in the context of the former Accession Countries (ACs). It shows that the HE population in Bulgaria is of a similar size to those in the Czech Republic and Hungary.

2. Figure 4 shows that Poland has by far the largest population of the ACs of around 40 million (very similar to Spain). Poland has by far the largest student population as well – about 60 per cent of all AC students - as a result of its large population size. In figure 3, the countries are ordered by their population size as in figure 4. The similarity of pattern between figures 3 and 4 demonstrate the very high level of correlation between population size and number of HE students.

3. The Czech Republic and Hungary have the next largest populations of around 10 million. The population of Bulgaria is just below this level at approximately 8 million – figure 3 illustrated that the total number of HE students in these countries are also similar. All the other ACs have populations under 5 million with Cyprus and Malta under 1 million.

4. To put the student population in the context of the EU 15 countries, in 2000-01 there were approximately 3 million HE students in the ACs. This compares to the 13 million HE students in the EU 15 in 2000-01. The HE student population is much larger in the EU 15 than it is across the former ACs, but recent growth has been significantly higher amongst the former ACs than the EU 15 countries. Table 5 shows that the number of HE students in the ACs has increased by over 33 per cent in just a 4 year period from 1998-99 to 2003-03. This is a very high rate of increase and compares to an increase in EU students of just 10 per cent over the same period.

5. Table 5 shows that HE student numbers in Bulgaria have followed a different pattern to that of the former AC countries during this period. In Bulgaria, numbers grew rapidly in the early years of the last decade, but from 1998-99 have been declining. This is in stark contrast to the rapid levels of growth that have taken place in the former AC countries since 1997-98. Student numbers in Bulgaria declined by 12 per cent from 1997-98 to 2002-03, the decline only halting in 2003-04.

6. Table 6 shows HE numbers in Bulgaria specifically, by broad types of HE students, and up to the most recent year of data for 2003-04. It shows that the slight decline in HE numbers continued to 2001-02, since when numbers have levelled off to around 230,000. The number of Doctor's

degrees has been steadily increasing since 1997-98. It is also worth noting that the number of private HE students has been increasing since 1999-2000.

7. There has been a slight decline in the young population in Bulgaria from 1995 to 2000 (a 1 per cent decline in the number of 18-23 year-olds) as shown in table 7, but this does not explain the different pattern of growth in HE numbers in Bulgaria in comparison to the former ACs. The number of HE students has increased significantly in all of the former ACs from 1997-98 to 2002-03 (the table shows numbers only to 2000-01) despite declining young populations in five of the former ACs. Indeed, in Hungary and the Czech Republic the young populations declined by 5 per cent and 4 per cent respectively between 1995-2000, and yet the number of HE students grew by as much as 30 per cent and 21 per cent respectively from 1997-98 to 2000-01.

8. Although HE numbers in Bulgaria are at similar levels to those of former ACs of a similar size (the Czech Republic and Hungary), the recent decline in HE numbers should nevertheless be seen in the context of the continuing gradual growth in HE systems across the EU 15 countries, and the rapid growth taking place in the former ACs.

Participation rates in HE

9. We know that the number of HE students in the former ACs has increased rapidly recently - by over 30 per cent in just a 4 year period from 1999-2000 to 2002-03. Indeed, data from the OECD show that the biggest growth in the number of tertiary students from 1995-2000, across 21 OECD countries, took place amongst the three former ACs they considered[6]. Poland, Hungary and the Czech Republic had the largest growth in tertiary students during this period - some from a demographic increase, but mostly from an increase in participation rate / rate of enrolment (OECD, 2002). When this exercise was repeated two years later, Hungary and the Czech Republic were still in the top three, but Poland was not included in the study (OECD 2004a).

10. A key figure that needs to be considered is the present participation rate in HE, but this is a difficult statistic to calculate – and even harder to compare on a meaningful basis across different countries because of varying definitions. As a result, it has proved very difficult to obtain participation rate information.

11. Table 8 is an attempt to generate a statistic that can be used as a proxy for participation rate. It is the total number of HE students aged 18-23 years-old shown as a percentage of the 18-23 year-old population (chosen because the vast majority of students fall within this age group in Bulgaria and across all of the former ACs (see figure 24)).

6 Poland, Hungary, and the Czech Republic were considered in a comparison of 21 OECD countries and were the three countries with the biggest increase in the number of tertiary students.

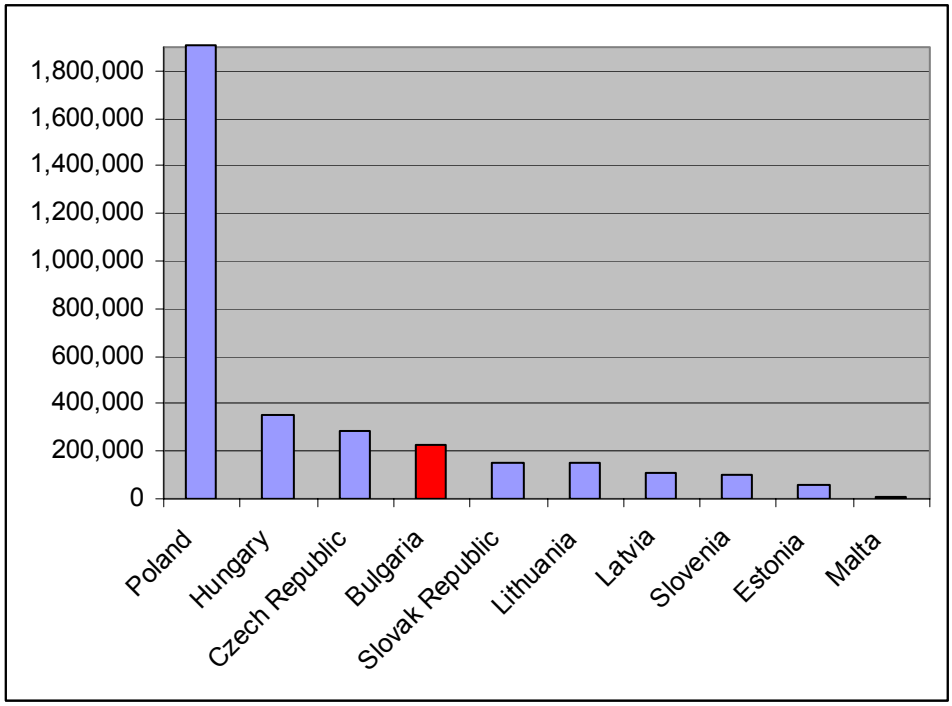
12. Table 8 shows that, excluding Malta, the percentage of 18-23 year-olds in HE in the former ACs is approximately between 20 and 30 per cent. The participation rate in Bulgaria sits in the middle of this range at around 24 per cent. Table 8 suggests that Bulgaria has a slightly higher participation rate in HE than Hungary and the Czech Republic – the former ACs nearest in size to Bulgaria.

13. Table 8 illustrates that the participation rate in Bulgaria is still slightly lower than the average participation rate across the former ACs – and it has been growing more slowly recently. Furthermore, those former ACs with the higher percentage of 18-23 year-olds in HE at around 30 per cent – Estonia, Lithuania and Slovenia – all experienced considerable growth in HE numbers from 1997-98 to 2000-01, and still have the potential to increase their participation rates further of course. The higher participation rates in Spain, France, and Greece demonstrate this.

14. The capacity for further increase is also demonstrated by the proportion of young people with tertiary level qualifications in Bulgaria and the former ACs in comparison to EU 15 countries. Figure 9 shows the proportion of 30 to 34 year-olds with HE qualifications. It shows that Bulgaria has quite a high proportion of 30 to 34 year-olds with HE qualifications in comparison to many of the former ACs (including Hungary and the Czech Republic). However, this proportion is still 10 percentage points lower than three of the former AC countries (Lithuania, Cyprus and Estonia), and still considerably lower than the EU 15 countries shown.

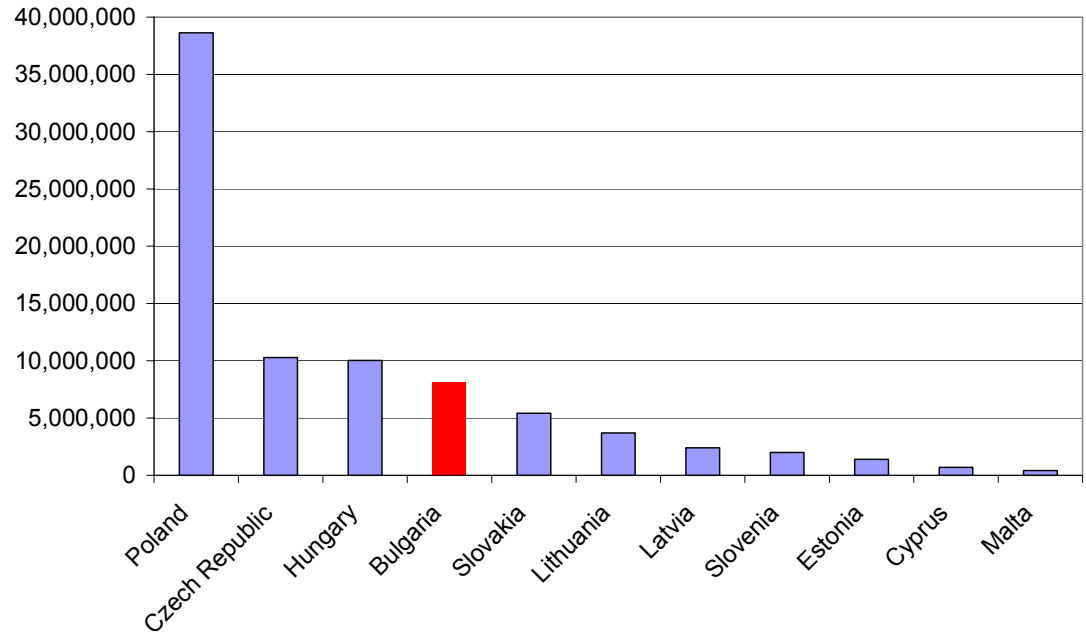
15. It is clear that, in the context of the former ACs and the EU 15 countries, there is capacity for further growth of participation rates in Bulgaria and, as a result, clear potential for further expansion of HE numbers. Whether student numbers and participation rates will increase within Bulgaria in the future, will depend upon the factors that influence demand for HE and whether the supply of places will be sufficient to allow further growth. These factors are considered below.

Figure 3 Total number of HE students (ISCED 5-6) in each of the Accession Countries,



Source: Eurostat, table5etc.htm

Figure 4 Total population in each of the Accession Countries



Source: Eurostat, FCO, The Economist.

Table 5 Growth in HE student numbers 1997-98 to 2000-01

Country	1997-98	1999-00	2001-02	2002-03	%growth 1997-98 to 2002-03
EU 15	11,972,210	12,563,270	12,820,345	13,191,031	10%
AC 10		2,643,550	2,916,821	3,137,657	33%
Poland	1,191,100	1,579,570	1,774,985	1,906,268	60%
Hungary	254,695	307,070	330,549	354,386	39%
Czech Republic	215,040	253,695	260,044	284,485	32%
Bulgaria	**260,485**	**261,320**	**247,006**	**228,394**	**-12%**
Slovak Republic	112,835	135,915	143,909	152,182	35%
Lithuania	96,370	121,900	135,923	148,788	54%
Latvia	70,235	91,235	102,783	110,500	57%
Slovenia	68,125	83,815	91,494	99,214	46%
Estonia	43,065	53,615	57,778	60,648	41%
Cyprus		10,415			
Malta		6,315	7,422	7,259	26%

Source: Eurostat, table enrl1_tl. HE student numbers are all tertiary level students ISCED level 5 and 6 (ISCED 1997).

Note: growth for Latvia and the AC10 is for 1999-00 to 2002-03)

Table 6 HE students by level of International Standard Classification of Education (ISCED 97)

	1997/98	1998/99	1999/2000	2000/01	2001/02	2002/03	2003/04
Higher education (ISCED-5B, 5A, 6)	**260 487**	**270 077**	**261 321**	**247 006**	**228 394**	**230 513**	**228 468**
Education in colleges (ISCED-5B)	23 747	22 065	18 461	16 369	16 646	14 801	16 294
Education in universities and equivalent higher schools (ISCED-5A)	234 182	245 237	239 769	227 223	207 750	211 272	207 340
Qualification degree and scientific title 'Doctor' (ISCED-6)	2 558	2 775	3 091	3 414	3 998	4 440	4 834
OF WHICH PRIVATE							
Tertiary education (ISCED-5B, 5A, 6)	26 177	32 494	27 414	27 939	28 678	30 984	32 802
Education in colleges (ISCED-5B)	2 076	2 691	2 516	2 440	3 047	2 635	3 660
Education in universities and equivalent higher schools (ISCED-5A)	24 101	29 803	24 898	25 476	25 571	28 293	29 065
Qualification degree and scientific title 'Doctor' (ISCED-6)	.	.	.	23	60	56	77

Source: National Statistical Institute, Bulgaria. http://www.nsi.bg/SocialActivities_e/Education_e.htm

Table 7 The change in the population of 18-23 year-olds over 5 years from 1995-2000, compared to the growth in HE numbers over 3 years from 1997-98 to 2000-01

	% change in population of 18-23 year-olds 1995-2000	% growth in HE numbers 1997-98 to 2000-01
Poland	11%	49%
Hungary	-5%	30%
Czech Republic	-4%	21%
Slovak Republic	5%	28%
Lithuania	-4%	41%
Latvia	-3%	46%
Slovenia	2%	34%
Estonia	-3%	34%
Bulgaria	**-1%**	**-5%** **(-12% to 2003-04)**

Notes: Data for HE numbers in 1997-98 were not available for Cyprus and Malta

HE numbers source: Table 3.

Population data source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, World Population Prospects: The 2002 Revision and World Urbanization Prospects: The 2001 Revision.

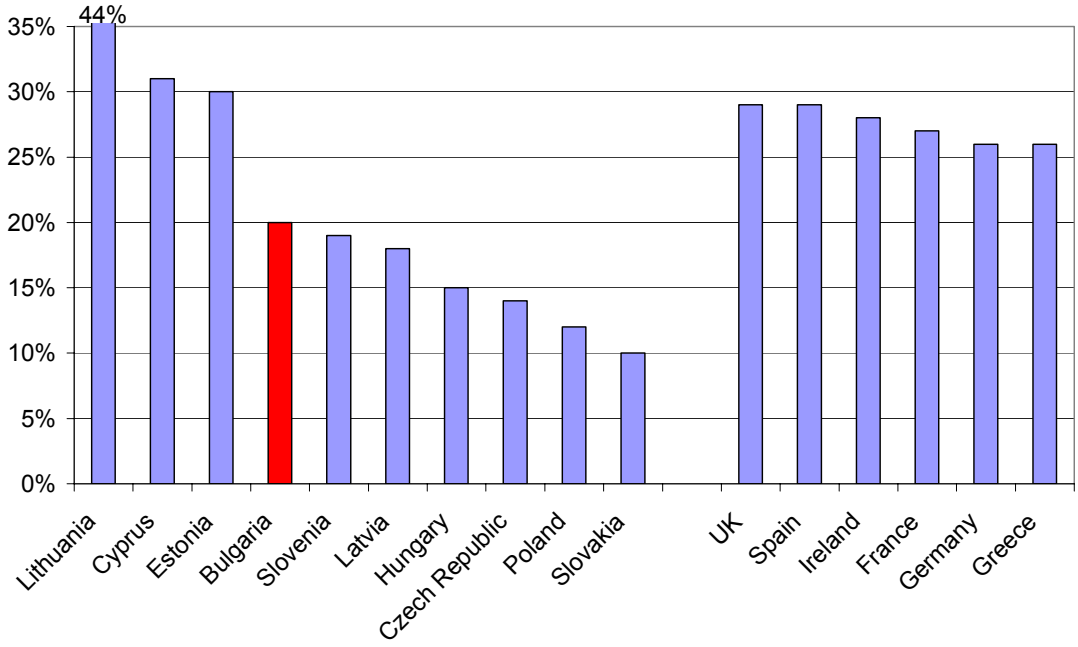
http://esa.un.org/unpp [n.b. later data are not available as this is produced only every five years]

Table 8 Number of HE students aged 18-23 as a percentage of the total population of 18-23 year-olds, 2000

	Number of HE students aged 18-23 ('000)	Total population of 18-23 year-olds ('000)	**Percentage of 18-23 year-olds in HE**
Estonia	35	116	**30**
Lithuania	87	285	**30**
Slovenia	55	179	**30**
Cyprus	19	71	**25**
Latvia	50	197	**25**
Poland	983	3,946	**25**
Bulgaria	**177**	**729**	**24**
Hungary	195	938	**21**
Czech Republic	184	988	**19**
Slovak Republic	105	565	**19**
Malta	4.9	35	**14**
Greece	389	931	**41**
France	1,518	4,573	**33**
Spain	1,192	3,774	**32**

HE data source: (Eurydice, 2002) Chapter F, Annex. HE numbers for 1999-2000. HE numbers have been adjusted to include the 56% of Cypriot students studying abroad, and the 8 per cent of Maltese students studying abroad (see figure 24)
Population data source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, World Population Prospects: The 2002 Revision and World Urbanization Prospects: The 2001 Revision. http://esa.un.org/unpp [n.b. later data are not available as this is produced only every five years]

Figure 9 Proportion of people aged 30 to 34 with tertiary education qualifications (ISCED 5 and 6) 2000



Source: (Eurydice, 2002) Chapter F

Appendix 2B

FACTORS THAT MIGHT IMPACT FUTURE DEMAND FOR HE IN BULGARIA

16. Whether student demand will grow within a country depends largely on two things – the size of the population (especially the young population) and the propensity of the young population to enter higher education. Whether the number of HE students increases as a result of an increase in demand, depends on the supply of places. Factors affecting demand for HE, and the supply of places will both be considered in this Appendix.

Population projections

17. The section of the population most relevant to future demand for HE is the young population within any country. Table 10 shows that the population of 18-23 year-olds in Bulgaria is projected to decline to 2015 by as much as 29 per cent. In the context of the former ACs, this is not the greatest decline projected, but that should not deflect from the significance of this level of projected decline in the young population.

18. This decline in the young population will not necessarily mean a decline in HE numbers in Bulgaria if participation rates increase as they have done recently within the former ACs. This is demonstrated by recent history: some of the very rapid growth in HE numbers experienced recently across the ACs has happened, in many cases, despite a declining young population as shown in Table 7. Therefore, if participation rates increase in Bulgaria as they have been in the former ACs recently, HE numbers could increase in Bulgaria despite a declining young population.

Staying on rates in education and attainment levels

19. The rates of educational attainment and staying-on in school have a direct impact on participation rates. The former ACs already have very high school staying-on rates and educational attainment levels – above that of most of the EU. In contrast, staying-on rates and educational attainment at 18 are comparatively low in Bulgaria – both in comparison to the former ACs and to EU 15 countries.

20. Figure 11 shows that under 50 per cent of 18 year-olds are in full-time education in Bulgaria. This is a lower percentage than within any of the former ACs (except Cyprus where over 50 per cent of their HE students study abroad so the figure is distorted). Indeed, each of the central European countries, with the exception of the Slovak Republic, has rates above that of the EU 15 average – as high as 80 per cent in four of the former ACs.

21. The proportion of 18 year-olds in education has considerably increased amongst the former ACs in the last five years. In 1997, not one of the ACs met the EU 15 average level, but by 2001 the proportion of 18 year-olds in education had increased by up to 85 per cent (Hungary). This increase in staying-on rates in education across the ACs is likely to have been a strong driver of the increase in demand for HE experienced recently. This increase in staying-on rates has not taken place in Bulgaria and largely explains the lack of growth in HE numbers in Bulgaria recently in comparison to the former ACs.

22. Compulsory education ends at 16 in Bulgaria (it is 16 or 15 across all of the former ACs also). The proportion of 16 year-olds in education in Bulgaria was 83 per cent in 1999-2000 (Eurydice (2000), chapter E). This was lower than in any of the former ACs which all had rates of over 90 per cent (with the exception of Malta). At age 17, the proportion still in education had dropped to 69 per cent in Bulgaria, and at age 18, had dropped again to 46 per cent as shown in figure 11.

23. Figure 12 shows the proportion of 22 year-olds who have successfully completed at least upper secondary education – therefore a proxy for the proportion of 22 year-olds qualified to enter HE. Holders of secondary school leaving qualifications (Diploma of Secondary Education) are entitled to study at HE level in Bulgaria. Figure 12 shows that the proportion of 22 year-olds qualified to enter HE is around 75 per cent in Bulgaria. This is lower than within nearly all of the former ACs and lower than within the EU 15 countries shown other than Spain (between 80-90 per cent and between 70-80 per cent respectively). The Slovak Republic, Poland, and Slovenia have over 90 per cent of 22 year-olds qualified to this level – this is a remarkably high level and again, has no doubt contributed to the rapid growth in HE numbers in recent years. If Bulgaria were to achieve staying-on rates at 18 and attainment levels nearer to the levels of the former ACs, this would almost certainly increase demand for HE.

24. There is known to be a high correlation between staying-on rates, attainment in schools, and participation in HE (HEPI (2003a) and HEFCE (2001)). These high levels of staying on at 18 in the former ACs (figure 11) and high levels of attainment – especially across the central European former ACs – suggest there is a large pool of qualified potential entrants in these countries. If the propensity of level 3 qualifiers to enter HE converges towards EU levels, then this will create a very strong driver of future demand for HE in these countries. With a declining young population projected, it is even more important for Bulgaria to increase its staying-on rates at 18 and levels of attainment if it is to increase its number of HE students.

Economic drivers of demand

25. It is likely that economic drivers also play a part. For example, in the doubling of the participation rate in HE in the UK in the late 1980s / early 1990s (HEFCE, 2001), the most significant

economic driver was the rapid change in the occupational structure of employment in the 1980s: 'the demand for highly skilled labour and level 4 (HE) qualifications increased beyond the existing supply. The higher wages attached to jobs requiring level 4 qualifications in the late 1980s contributed significantly to the increased demand for HE in the early 1990s' (HEFCE, 2001).

26. The increased need for high level skills in modern economies (see HEPI paper for discussion of this subject within the UK (HEPI (2003b)) is an economic driver that exists in Bulgaria, just as it exists amongst the former ACs and amongst the EU 15 countries. If progressing towards joining the EU brings increased economic prosperity to Bulgaria as a result of economic growth, it is likely that the economy will also experience a further increase in demand from the labour market for highly skilled labour. The extent to which the supply of graduates is sufficient to meet this demand will determine the extent to which this impacts demand for HE, but there is significant potential for increased demand here – especially in terms of demand for HE level qualifications in the service industry.

27. To take Poland as an example, the European Commission's 2002 report on Poland's progress towards accession (European Commission, 2002), praised the overall quality of Poland's education system in helping it to develop its level of human capital 'in order to compete in the single market and the global economy'. However, it concluded that 'the capacity of the education system to deliver to the workforce the skills to match labour market demands is insufficient.' One of the main shortcomings of the system is 'a still relatively low share of the population with higher education (around 7 per cent)'. Table 8 shows that the participation rate in HE in Bulgaria is very similar to that in Poland. This suggests demand for high levels skills from the labour market will be a strong driver of demand for HE in Bulgaria also.

Unemployment

28. There are other economic factors that impact demand for HE. Figure 13 shows the extent to which levels of education relate to unemployment rates within Bulgaria and the former ACs – a much stronger relationship than is observed in the EU countries. In Bulgaria, there is just 6 per cent unemployment amongst those with an HE level qualification (ISCED 5-6) compared to a 23 per cent rate of unemployment amongst those who's highest qualification is an ISCED 1-2 level qualification.

29. Because unemployment rates remain high in Bulgaria and the former ACs, the reduced likelihood of unemployment will be a strong driver for individuals to enter HE. With the exception of Slovakia, Bulgaria has the highest rate of unemployment amongst the former ACs. Almost 40 per cent of persons under 25 years-old are unemployed (Commission, (2002)). Although this driver of demand for HE is not given a great deal of attention in the EU 15 countries where unemployment is much lower, it could have a significant impact in driving continuing demand for HE in Bulgaria.

30. Continuing labour market demand for high skills along with a greatly reduced chance of unemployment amongst graduates will act as key drivers to growth in demand for HE within Bulgaria in the future.

Wealth

31. In Bulgaria, as in other countries, propensity to study is linked to wealth. As the wealth of the country increases, so will demand for higher education. Figure 14 shows that Bulgaria has a lower per capita GDP than all of the former ACs at 28 per cent of the EU average GDP. All of the former ACs have below the EU average level of GDP with most ACs having under 50 per cent of the EU average GDP. Nevertheless, the GDP for Bulgaria is particularly low, even in comparison to the former ACs.

32. Figure 15 shows that Bulgaria is also less wealthy than any of the former ACs in terms of purchasing power. Figure 15 shows that the standard of living in Bulgaria is increasing in terms of purchasing power, along with each of the former ACs. However, the rate of increase seems to be slightly slower in Bulgaria than amongst the former ACs.

33. Another influence on demand for higher education is the distribution of wealth. This is a difficult thing to measure – especially in a way that is comparable across countries. However the S80/S20 quintile share ratio and the Gini coefficient should give an approximation of the distribution of wealth. The higher the distribution of wealth and the higher the average GDP, the higher the income of the highest earners is likely to be.

34. The S80/S20 ratio compares the total equivalised income received by the top income quintile (20 per cent of the population with the highest equivalised income) to that received by the bottom income quintile (20 per cent with lowest equivalised income). While the S80/S20 ratio is only responsive to changes in top and bottom quintiles, the Gini coefficient allows the full distribution of income to be taken into account. If there was perfect equality (i.e. each person receives the same income), the Gini coefficient would be 0 per cent; it would be 100 per cent if the entire national income were in the hands of only one person. Explanations of the S80/S20 ratio and the Gini Coefficient have been taken directly from Dennis and Guio (2003).

35. Figure 16 firstly shows that there is a high level of consistency in the two measure across each country. It shows that the average distribution of wealth in Bulgaria is not very different to the average across the former ACs and the EU 15. In Bulgaria the highest earning 20 per cent earn around 4 times more than the lowest earning 20 per cent.

36. Looking at the distribution of wealth enables us to understand better the factors which could impact demand from students. Just looking at the very low average GDP of Bulgaria might lead to

an underestimation of possible demand to study. Account also needs to be taken of the ratio of earnings between the highest and lowest 20 per cent of earners in Bulgaria.

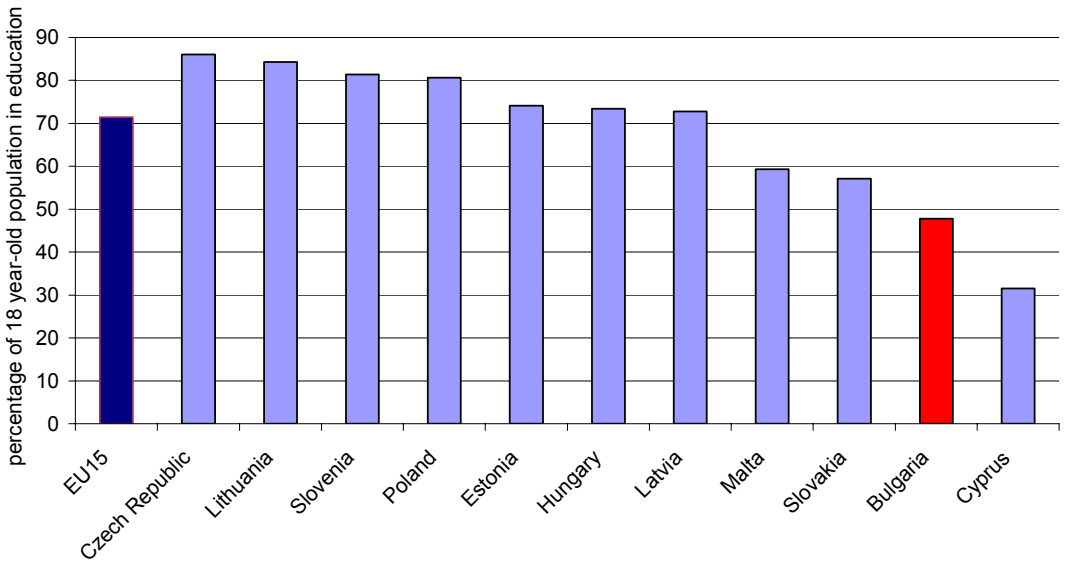
37. It is widely predicted that moving towards joining the EU will bring increased economic prosperity to Bulgaria. If the existing distribution of wealth remains constant, the wealth of the highest 20 per cent of earners could increase considerably. It is possible that this could increase demand for higher education.

Table 10 Projected population of 18-23 year-olds in the ACs to 2015 (in '000)

	1995	2000	2005	2010	2015	% change 2005-2010	% change 2005-2015
Poland	3,545	3,946	3,906	3,321	2,769	-15%	-29%
Czech Republic	1,044	988	805	768	663	-5%	-18%
Hungary	977	938	747	732	677	-2%	-9%
Bulgaria	**737**	**729**	**651**	**589**	**461**	**-10%**	**-29%**
Slovak Republic	537	565	521	472	404	-9%	-22%
Lithuania	298	285	316	311	249	-2%	-21%
Latvia	203	197	218	205	141	-6%	-35%
Slovenia	176	179	162	141	118	-13%	-27%
Estonia	119	116	124	113	75	-9%	-40%
Cyprus	63	71	78	79	72	1%	-8%
Malta	33	35	35	33	30	-6%	-14%
Total	6,995	7,320	6,912	6,175	5,198	-11%	-25%

Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, World Population Prospects: The 2002 Revision and World Urbanization Prospects: The 2001 Revision. http://esa.un.org/unpp

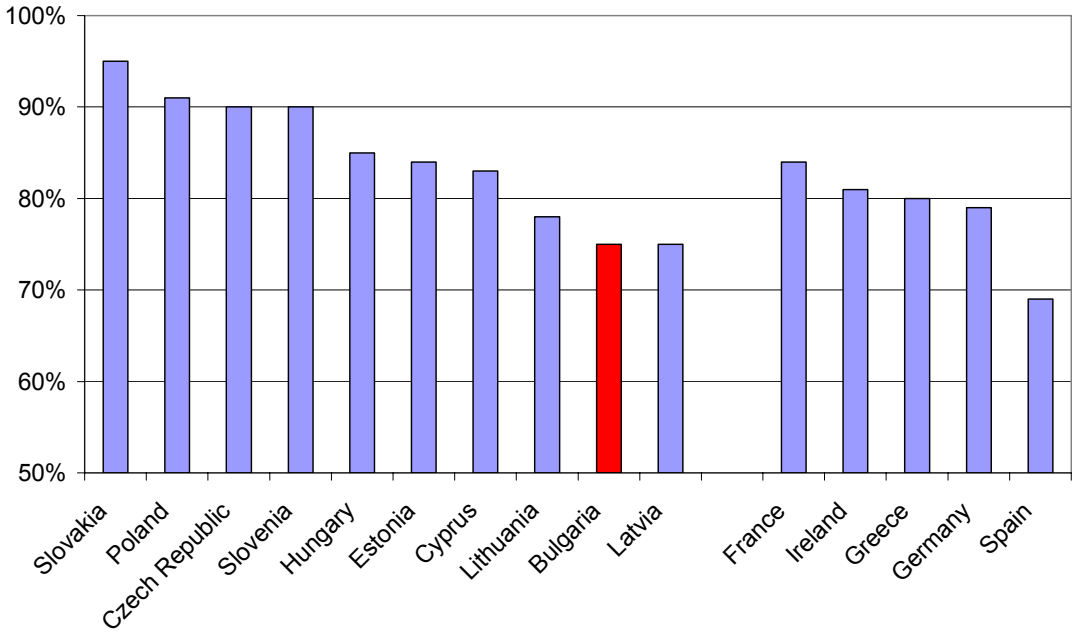
Figure 11 Proportion of 18 year-olds in education (all levels of education)



Note: Cyprus figures will be affected by very high proportion of HE students studying abroad that are 18 and will not be included in these figures.

Source: Eurostat data. Table 'cedu04cc' 'participation rates in education of persons aged 18 – candidate countries.

Figure 12 Proportion of 22 year-olds who have successfully completed at least upper secondary education (ISCED level 3)

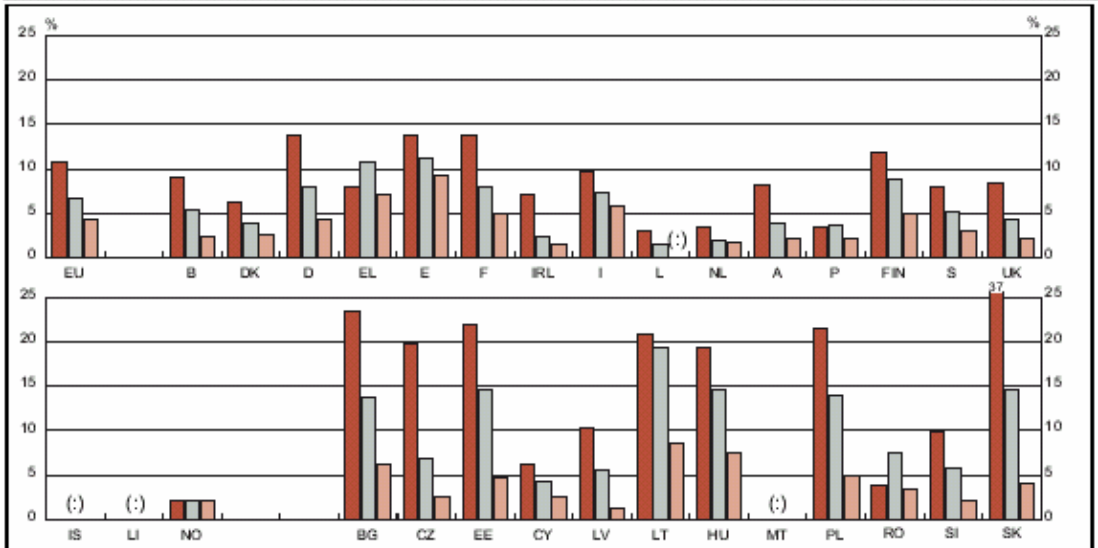


Notes: Data for Malta not available

Source: Eurydice (2000)

Figure 13 Unemployment rates in the 25-64 age band, by level of education, 2000

FIGURE A13: UNEMPLOYMENT RATES IN THE 25-64 AGE BAND, BY LEVEL OF EDUCATION, 2000



	EU	B	DK	D	EL	E	F	IRL	I	L	NL	A	P	FIN	S	UK
ISCED 0-2	10.7	9.1	6.3	13.8	7.9	13.8	13.8	7.1	9.8	3.1	3.4	8.2	3.6	11.9	8.0	8.5
ISCED 3-4	6.8	5.5	3.9	8.0	10.9	11.3	8.0	2.5	7.4	1.6	1.9	4.0	3.8	8.8	5.2	4.4
ISCED 5-6	4.4	2.4	2.6	4.3	7.1	9.2	5.1	1.6	5.9	(:)	1.7	2.3	2.3	4.9	3.0	2.2

	IS	LI	NO	BG	CZ	EE	CY	LV	LT	HU	MT	PL	RO	SI	SK
ISCED 0-2	(:)	(:)	2.1	23.3	19.7	21.8	6.3	10.2	20.9	19.3	(:)	21.4	3.9	9.8	37.1
ISCED 3-4	(:)	(:)	2.2	13.8	6.8	14.5	4.2	5.6	19.3	14.5	(:)	14.0	7.5	5.7	14.7
ISCED 5-6	(:)	(:)	2.2	6.3	2.6	4.7	2.6	1.2	8.5	7.5	(:)	4.9	3.4	2.1	4.1

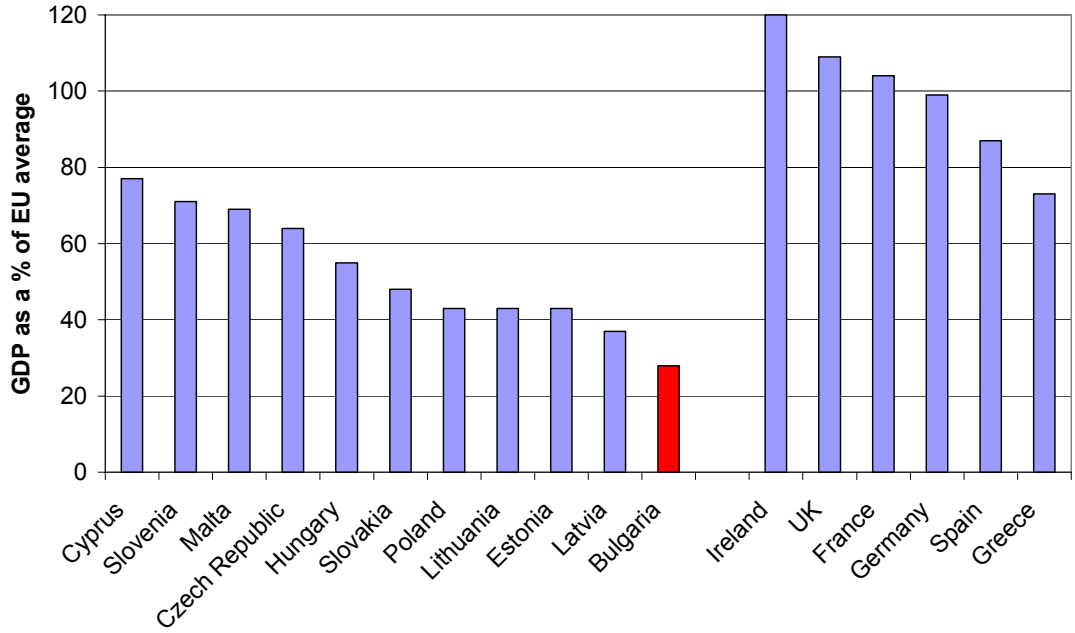
Source: Eurostat, Labour force survey.

Additional notes

Luxembourg: Some data is not shown because of the small size of the samples.
Iceland: Data is not shown because of the small size of the sample.

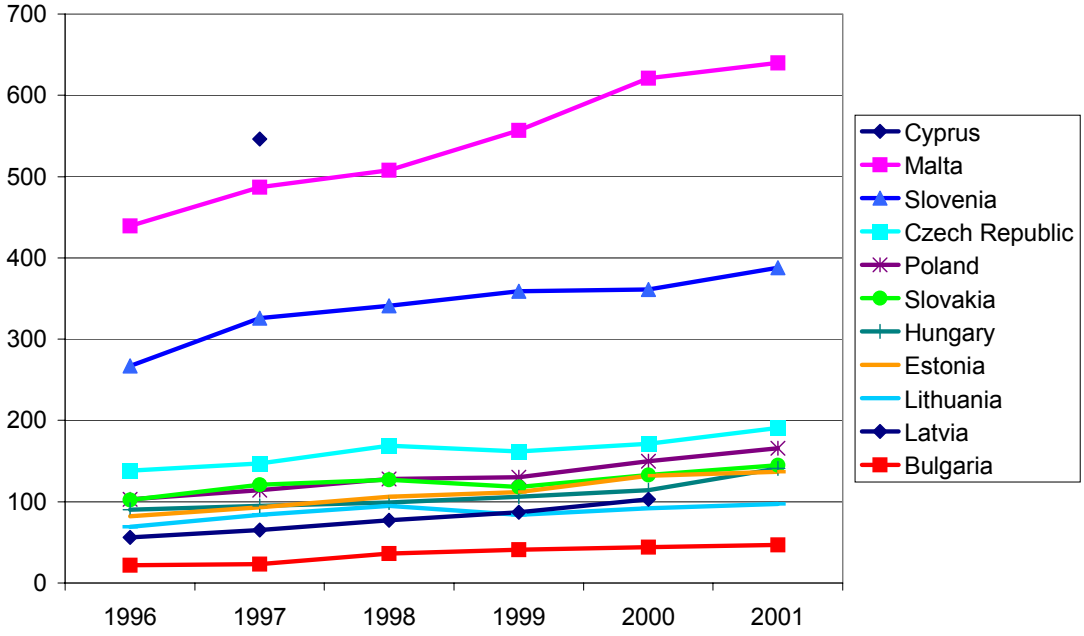
Source: (Eurydice, 2000) http://www.eurydice.org/Documents/cc/2002/en/CC2002_EN_home_page.pdf

Figure 14 GDP in each of the ACs as a % of EU average



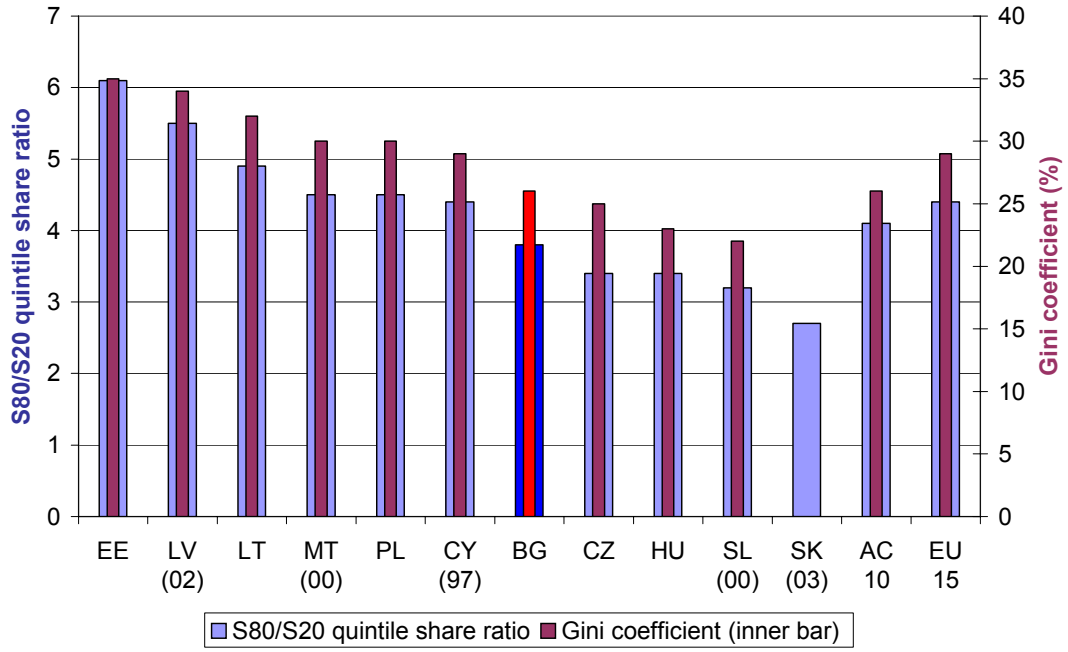
Source: Europa / Eurostat data http://www.europa.eu.int/index_en.htm

Figure 15 Average Household consumption of each Accession Country 1996-2001



Source: Eurostat data, table 'csoc03cc'. Average household consumption is in Euros

Figure 16 Distribution of wealth amongst the Accession Countries



Source: Dennis and Guio (2003)

Appendix 3

Economic need for highly qualified manpower

38. The two major requirements of the HE system in Bulgaria are for a 'sustainable system developed in compliance with EU standards' and one that it 'capable of providing valuable and competitive knowledge and skills' (Eurydice, 2003).

39. Labour productivity is an important measure in terms of innovation and economic growth. Bulgaria has the lowest levels of labour productivity in the CC7[7] at present (Innovation Directorate, (2003a)), and it is under 40 per cent of the EU average level. Human resources – including high level skills – are essential to growth and innovation.

40. In terms of the educational structure of economically active people, the Central European CCs have relatively higher levels of education than other countries with similar levels of income. This is certainly the case for Bulgaria which has relatively high levels of participation in HE (mid-range compared to the former ACs, see table 8) in comparison to its level of income (lower GDP than all former ACs, see figure 14).

41. In terms of human resource development in the hi-tech field, Bulgaria ***does*** seem to have sustainable conditions and advantages. International competitions among pupils illustrate that the level of education in mathematics and hard sciences is at a high level, and new science and engineering graduates account for 4.75 per cent of the 20-29 year-old population, putting Bulgaria second highest across the CC7 countries (Innovation Directorate, (2003b)).

42. The supply of graduates has also been slightly increasing each year since 1998-99 (despite total HE numbers declining slightly over this period), showing a positive trend in the area of supply of skilled human resources in Bulgaria (Innovation Directorate, (2003b)). The fact that total HE numbers shows a declining trend, however, is a concern if Bulgaria is to continue this increase this supply.

43. Demand for skilled human resources in Bulgaria has, unfortunately, demonstrated an opposite trend. Over the last decade the total number of R&D personnel in Bulgaria has declined significantly. 'The human potential, able to be involved in R&D activities has seriously declined during the decade' (Innovation Directorate, (2003b)), the decline of business R&D has been most sharp. Capital intensity is also much lower in the CCs, and gross expenditure on R&D (GERD) in Bulgaria is less than 5 per cent of the EU average.

[7] For the purpose of this study, the CC7 or Candidate Country 7, were Bulgaria, Latvia, Lithuania, Malta, Romania, Slovakia and Turkey.

44. A European Commission report on innovation concluded that the education levels in the Central European CCs do not seem to be either a major advantage or a constraint for labour productivity and economic growth – although potentially favourable education structures have become a factor of economic growth in a few metropolitan regions (Innovation Directorate, (2003a)). This is a direct result of the lack of demand for skilled human resources, and the lack of investment in other areas required to increase productivity (capital intensity and GERD). As concluded in the HEPI report 'Demand for graduates: a review of the economic evidence' (HEPI (2003b)), 'increased high-level skills are a necessary, but not a sufficient condition to increase productivity.' The European Commission report came to similar conclusions:

> 'evidence suggests that the CC economies have labour forces with lower productivity, flexibility and quality (than the EU average). Accordingly, improving HE and LLL systems is fundamental in developing a knowledge-based economy. However, the quality of human capital is not a sufficient requisite for higher employment and growth; but accompanied by the diffusion and application of new technologies, improvements to education and training systems can lead to increased productivity and ultimately economic growth' (Innovation Directorate, (2003a)).

45. Universities role in economic progress is not just about the supply of graduates. Universities have been identified as key players in the progression of the economy to an innovation-driven stage, not only through the production of high quality, highly skilled graduates – although this is an essential role – but through the creation and commercialisation of new knowledge. Universities have become increasingly important to regional and national competitiveness through successful R&D involving business and universities co-operating throughout the innovation process. The continuing efforts being made to enhance and increase interaction between universities and private businesses will play a key role in developing the economy in Bulgaria.

46. In terms of efficiency of the supply of graduates into the labour market, it is also essential that the degree structure and qualifications that match the labour market requirements. Recent reforms in Bulgaria, including the 2002 amendments to the HE Act, made significant progress towards this in developing a structure of Bachelor, Master, and Doctor's level degrees in line with the Bologna recommendations. However, there is evidence that introducing these new structures is not enough in itself to ensure these qualifications have recognised value in the labour market (and therefore value with students).

47. Research by the European Commission (European Commission (2003)) shows that across the EU, only 9 per cent of universities can imagine their graduates leaving with 'only' a Bachelor degree. This suggests a 'certain lack of confidence in the relevance to the labour market of these degrees. In Estonia and Poland, not a single institution thought any of their graduates would leave

at the Bachelor degree level. The report suggests that 'they may not include the skills and competences students will need to become employable – this in turn can be explained by the non-involvement of employers in designing the curricula.' It is clear that Bulgaria is not alone in facing this problem.

48. Bulgaria must ensure that its programmes are developed in a way that is responsive to labour market needs whilst ensuring recognised standards and quality of levels of qualifications. At the same time Bulgarian industry must reform in a way that makes use of, and therefore demands, high level skills and knowledge. Only then will Bulgaria be confident of its ability to grow into a modern economy. This is a major challenge across all EU countries, not just Bulgaria – and there are no simple answers.

Appendix 4

Gender Balance

49. Bulgaria, just as many countries across the EU 25, has a higher proportion of female than male HE students. Figure 17 shows that in Bulgaria, 56 per cent of students were female in 2000-01, which is in line with the average level for the former ACs, but slightly higher than the average level across the EU 15 countries.

50. In terms of graduates, however, Bulgaria has one of the highest ratio of female to male tertiary level graduates across all of the former ACs and EU 15 countries with approximate 7 females per 4 males graduating. Higher graduation rates for females are related to the higher enrolment / participation rates in tertiary education, but even so, there is a high ratio of female to male graduation rate in Bulgaria.

51. Figures 18 and 19 show the higher levels of females both enrolled and graduating from the various subject groups in comparison to the EU average levels. The proportion of females enrolled in Science, Maths, and Computing subjects is significantly higher than EU average levels (just over 50 per cent in Bulgaria compared with just under 40 per cent across the EU). The proportion of those that graduate in these subjects that are female is even greater, with over 65 per cent of graduates in Science, Maths, and Computing subjects being female in Bulgaria compared with 40 per cent on average across the EU. There is also a much higher proportion of females that both enrol and graduate on courses in Engineering, manufacturing and construction – double those of average EU levels, although still under 50 per cent in these subjects. The only subject where a lower proportion of female students enrol and graduate in Bulgaria than in the EU is in subjects related to Services.

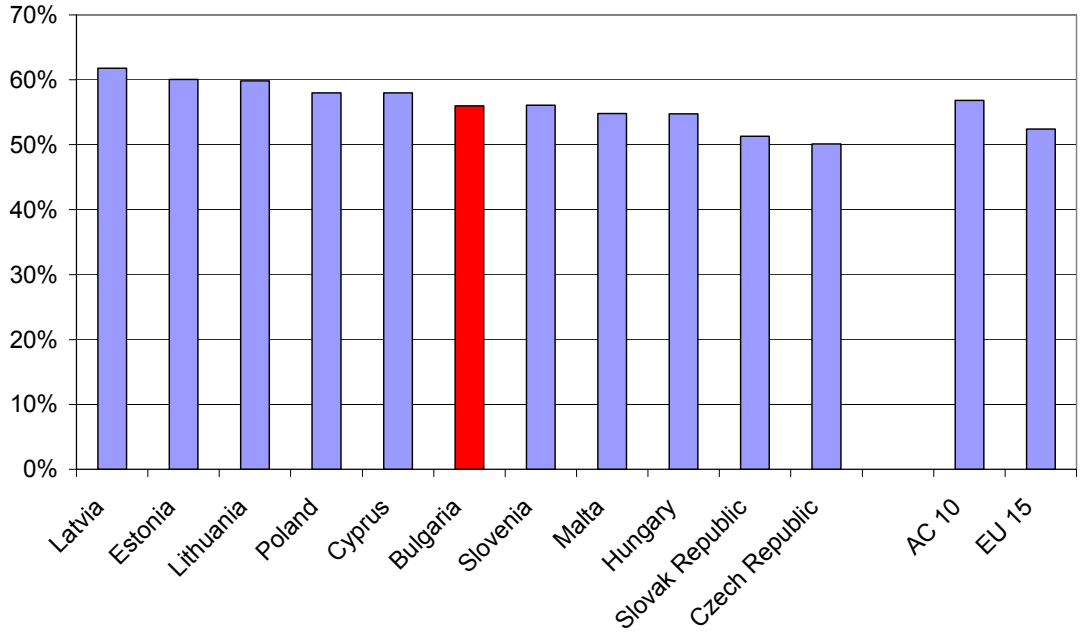
52. In many ways the high participation of females relative to males is to be welcomed – in those states where females do not participate sufficiently in HE there is serious concern about underutilisation of human resources. However, two implications flow from this. First, because of the lower level of economic activity of the female population on average, more females need to be educated to achieve a similar level of economic output as males. Second, if males eventually participate at levels similar to females (and thee is no reason in principle why they should not), then that itself will give rise to sharply increased demand for HE overall.

53. Although student numbers do not suggest a disproportionately high number of female students in comparison to EU levels, in terms of graduates in Bulgaria, there does seem to be a high proportion of females graduating in comparison to male students. One driver of the high proportion of female students is likely to be the high proportion of girls achieving general upper secondary

education qualifications in Bulgaria (as opposed to vocational upper secondary education qualifications). Figure 20 shows that nearly twice as many girls as boys obtain a general upper secondary education qualification in Bulgaria – this is higher than amongst the former ACs, and significantly higher than across the EU 15 countries. This evidence would suggest that in order increase the proportion of male HE students, it would be necessary to increase the proportion of boys obtaining general upper secondary education qualifications.

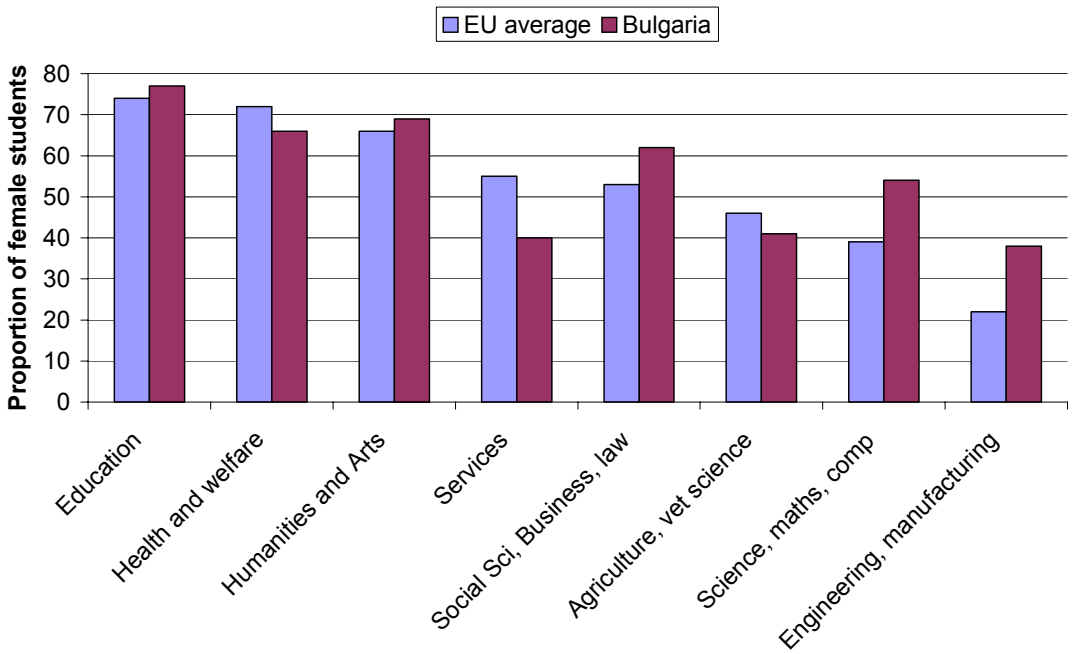
54. The question of graduation rates is slightly different, however. The proportion of female students enrolled in HE is not significantly above EU average levels, however, the proportion of graduates that are female is much higher. This suggests that the non-continuation rate for male students is a great deal higher than for female students. If this is the case, further research would be required to identify the causes of why the graduation rate for men was significantly lower than for women.

Figure 17 Proportion of female students 2000-01



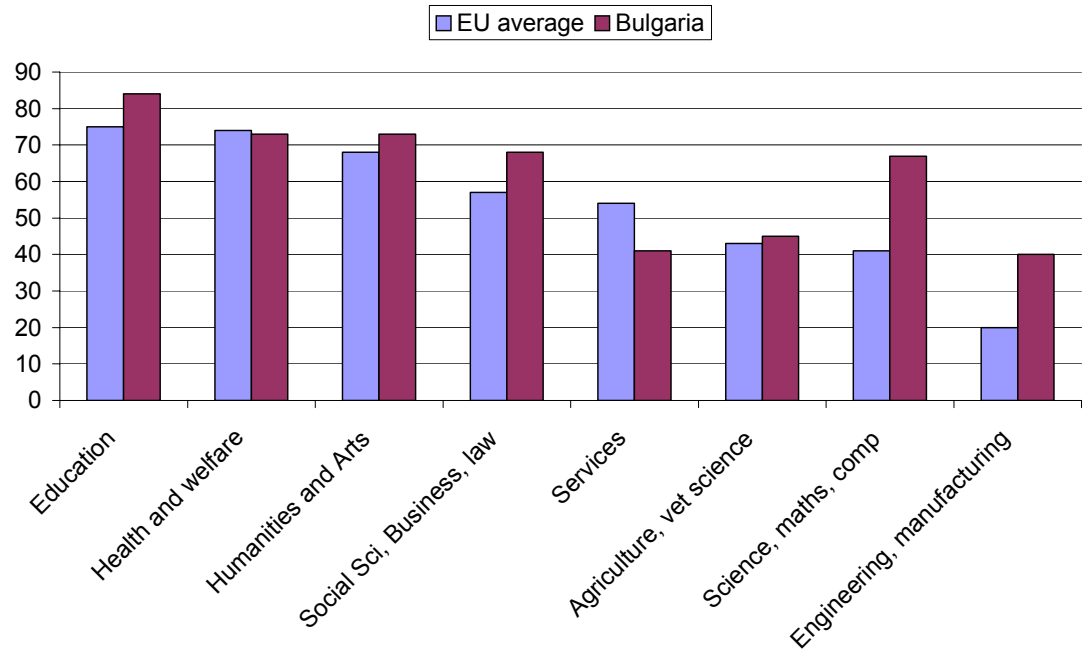
Source: Eurostat, table cedu01cc. HE student numbers are all tertiary level students ISCED level 5 and 6 (ISCED 1997).

Figure 18 Proportion of female students enrolled on courses, by subject



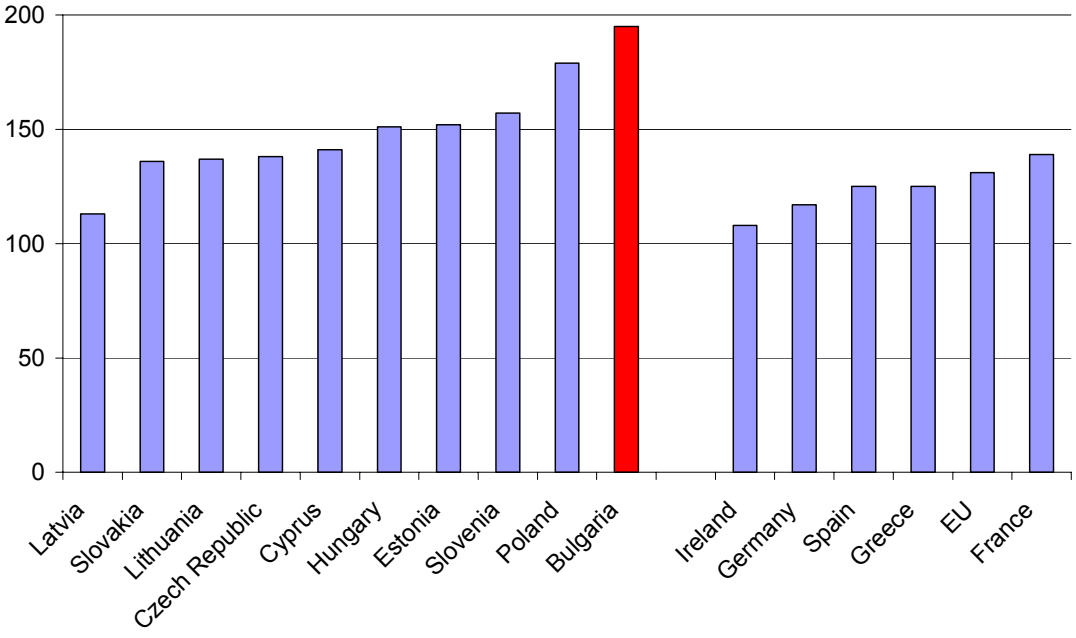
Source: (Eurydice, 2002) Chapter F

Figure 19 Proportion of female graduates by subject



Source: (Eurydice, 2002) Chapter F

Figure 20 Number of girls for every 100 boys obtaining a general upper secondary education qualification, 2000



Source: (Eurydice, 2002) Chapter E

Appendix 5

Age profile of academic staff

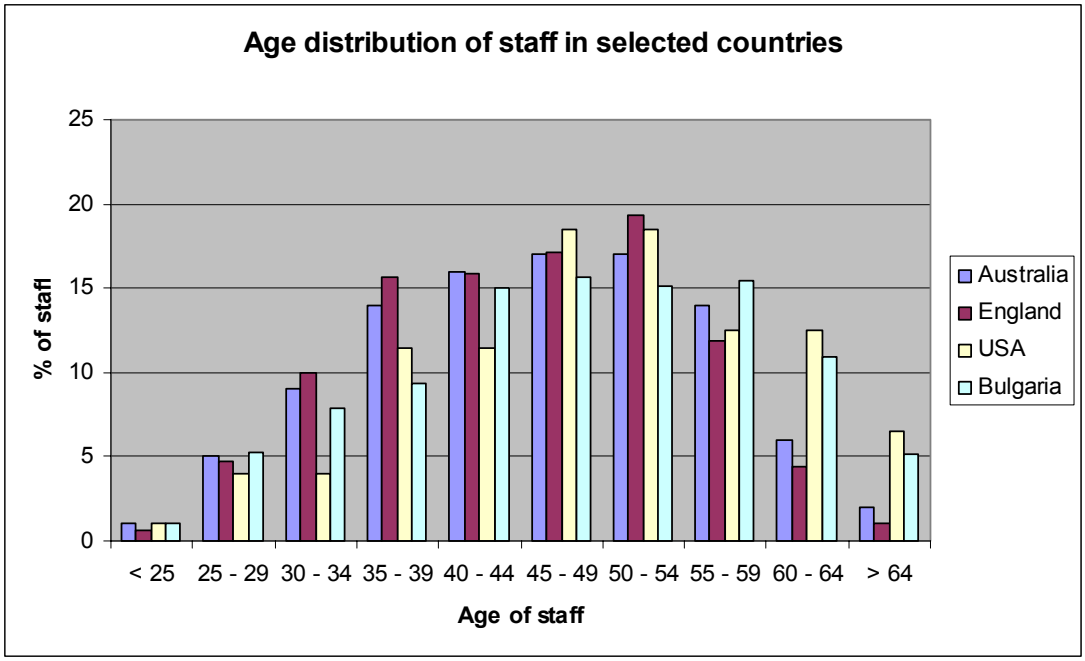
55. It is often said that the academic staff age profile in Bulgaria is aging, and that this will represent a problem in the near future, as large numbers of senior staff approach retirement, and younger staff are not in post to take their places.

56. It is true that the profile of academic staff is indeed weighted substantially towards the older age groups. Figure 21 below shows this quite clearly. However, figure 21 also shows the age profile of Bulgarian academic staff in comparison to the age profiles in the USA, Australia and the United Kingdom (these counties have been selected because data for these were readily available – it is not known if they are typical of other countries, but there is no reason to think they are not).

57. It will be seen from figure 21 that the age profile of staff in Bulgaria is very close to those of other countries, and indeed is significantly younger that that of the USA. In fact, because the data for Bulgaria include only staff with a permanent contract, whereas those for some of the other countries represent all academic staff, whatever their contract, it is very likely that the true comparison for Bulgaria is in fact more positive than is shown here.

58. This comparison does not imply that the age profile of staff is not an issue that needs to be addressed. But it does suggest that it is not an issue that is unique to Bulgaria. And given what is said elsewhere about overstaffing in some subjects, this may even represent an opportunity to address the question.

Figure 21



Source: unpublished data from Universities UK.

Appendix 6

Subjects studied by HE students in Bulgaria

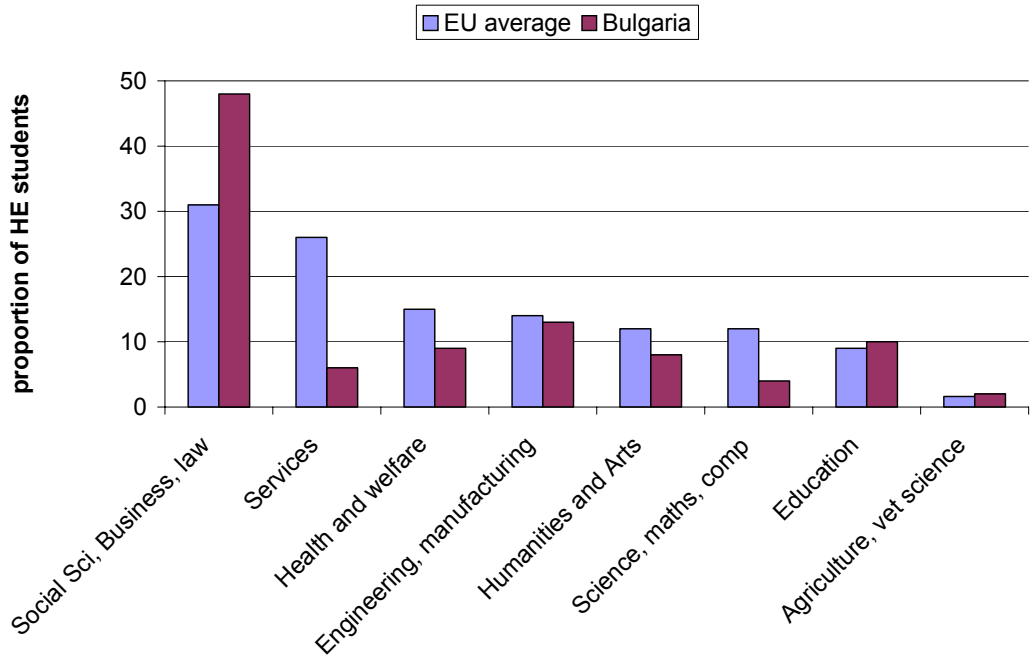
59. Figure 22 illustrates the proportion of HE students studying various subjects in Bulgaria in comparison to EU average proportions. The subjects are ordered by the EU average levels and demonstrate that there are some differences in the proportion of students studying certain subjects in Bulgaria in comparison to EU countries.

60. The highest proportion of students study Social Science, Business, and Law both in Bulgaria and in the EU. However the proportion is much higher in Bulgaria with nearly half of all students studying these subjects (compared to around 30 per cent of students across the EU). The greatest discrepancy is in the proportion of students studying in subjects recorded as 'services', with around 25 per cent of EU students studying these subjects compared to just 5 per cent of Bulgarian HE students. It could be that some of this difference is due to how subjects are grouped into the categories that have been used here. Nevertheless, it does suggest a low level of HE level qualifications related to the service industry in Bulgaria, which will need to be addressed in the future if the labour market and economy in Bulgaria are going to become more like the EU economies.

61. A slightly lower proportion of Bulgarian students study in subjects related to Health and Welfare than the EU average, but this is not a large difference, and a slightly higher proportion study in subjects related to Education. The other notable difference is that a lower proportion of Bulgarian students are taking subjects in Science, Maths, and Computing than the EU average – just 4 per cent of Bulgarian students, compared to an EU average of 12 per cent. This is considered further in figure 9.

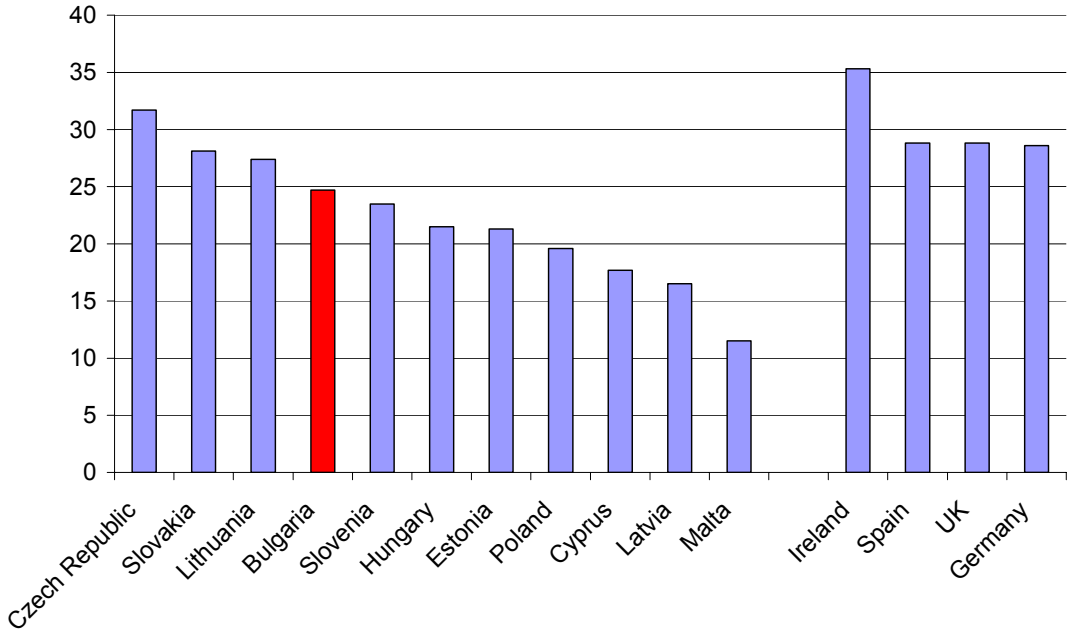
62. Figure 23 shows the proportion of tertiary level students in science, maths, computing, engineering, manufacturing, and construction. Graduates from these subjects are widely recognised as playing a vital in economic growth and prosperity. The EU average proportion of students studying in these subjects is around 25 per cent, and figure 9 shows that Bulgaria is approximately at this level. This is a higher level than most of the former ACs, but there is still room for growth towards the higher levels demonstrated in the EU 15 countries shown, and in the Czech Republic, Slovakia, and Lithuania.

Figure 22 Proportion of HE students studying various subjects in Bulgaria compared to EU average levels



Source: (Eurydice, 2002) Chapter F

Figure 23 Tertiary level students in science, maths, computing, engineering, manufacturing and construction as a proportion of all tertiary level students, 1999-2000



Source: (Eurydice, 2002) Chapter F

Appendix 7

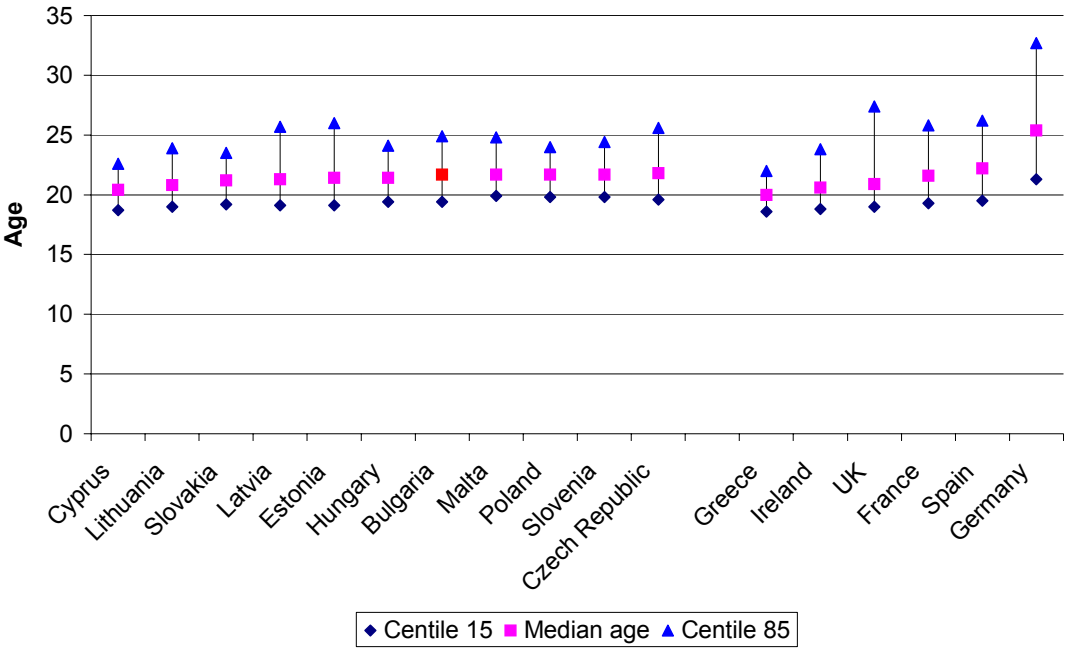
Lifelong Learning

Age distribution of HE students in Bulgaria

63. The median age of students across the EU 15 countries and former ACs is 22 years. As is shown in Figure 24 below: this ranges from 20 years in Cyprus and Greece, to 26 years in Denmark. In all of the former ACs, the range of the distribution of ages is quite limited. The median age of tertiary students in Bulgaria is around the EU average at just under 22 years, and the limited distribution of the age profile of students is very similar to the former ACs.

64. Whilst the limited age distribution profile of HE students is similar to those of the former ACs, in the context of the commitment the Bulgarian government has made to life-long learning, it does suggest that the HE system is still based on a traditional elite system catering for young full-time entrants. In moving towards a mass system of HE, and one that promotes flexible study patterns for the purpose of encouraging life-long learning, the age distribution profile of HE students is likely to increase towards the levels of EU 15 countries such as Germany, and to a lesser extent the UK.

Figure 24 Median age, 15 centile and 85 centile, of HE students in Bulgaria, the former ACs and EU 15 countries



Source: (Eurydice, 2002) Chapter F

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