

**Higher Education in Turkey for 21st Century:
Size and Composition**

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**Technical Annex 2: Analysis of unit costs in Turkish higher education
by Asena Caner**

Technical Annex 3: Labour market analysis by Cagla Okten

Executive Summary

1. Turkish higher education is at a crossroads. Turkey has come a long way in establishing an efficient system of higher education which is moving into a ‘mass’ system with institutions spanning the whole country. And yet, the challenge Turkey faces in the future is as complex. The ever rising social demand is providing an acute pressure on students at university entrance examinations, which in turn is having adverse effects on the quality of learning in secondary schools. Graduate unemployment continues to pose questions as to the relevance and adequacy of higher education. Ensuring equitable access in a country as diverse as Turkey will be a constant battle, especially as enrolment expectations rise within the population.
2. There is a clear understanding among key stakeholders in Turkey that this is a critical juncture to think about the future shape of higher education. What should be the vision, goals and targets in the next phase of higher education development? What strategies and policies must be taken to achieve such a vision and goals?
3. In June 2006, YOK led the way in raising these questions for public debate through publishing a draft strategy report. It proposed a vision of excellence in teaching, research as well as public service. The stated goals include an expansion of undergraduate and MYO programmes to achieve a gross enrolment rate of 65%, and a five-fold expansion of doctorate programs both to meet the increased staffing needs of the higher education system and external demand for science and technology manpower. A number of structural changes are proposed as complementary measures to achieve the vision and goals, including changes in entrance examination systems as well as governance and management arrangements.
4. The objective of this report is to take on the challenge set by YOK and take the debate further by providing complementary analyses of demand and supply conditions in Turkey, and by examining lessons from international experience. The report concludes that the priority for Turkish higher education is to undertake deeper structural changes in the next decade, and that the goal for expansion can only be achieved satisfactorily along with such changes.
5. **The alternative path suggested by the report is to build the foundations for future growth.** The gross enrolment ratio target should serve as a secondary goal – to be kept deliberately low, for instance, at 50-55%, which is still internationally respectable. Instead, **the emphasis should be placed on developing higher education institutions with differentiated missions so that they are responsive to increasingly diverse social and labour market needs. The system as a whole would be characterized by varieties of excellence as each institution would pursue excellence in a different mix of teaching, research, and service.**

Rationale for an alternative path

6. Why are deeper structural changes needed before further expansion? There are four reasons. First, there is substantial evidence which suggests that the problems of acute competition for university entrance in Turkey would not be solved by simple expansion. The prospective students care deeply about the quality and reputation of institutions and programs. The competition for favoured programmes and institutions could actually worsen if the system was expanded without due attention to the quality and effectiveness of new programmes. It is clear that quality upgrading must take precedence over expansion in the first instance.
7. Second, it is increasingly inappropriate for a higher education system to have a single performance metric – such as academic excellence. The entering student population are already diverse and will be even more so in the future. They would require the system to offer diverse educational opportunities to meet their respective needs. For some, professional relevance and excellence would be more important than traditional academic excellence. This is because the Turkish higher education system is becoming a ‘massified’ system; a degree will no longer be a privilege for the few but a standard expectation for many. The system must offer diversity in excellence so that each diploma/degree can offer appropriate value added for each student.
8. Third, labour market needs are also increasingly diverse and there is an urgent need for all higher education institutions to be linked more closely with employers. The acute unemployment was largely a result of economic crisis, and economic recovery will likely create more jobs to bring back unemployment levels to a more reasonable level. However, there are some serious structural issues in the transition of graduates from university to work. Programs are not designed to meet employers’ needs which increasingly focus on generic and social skills such as communication, analytical thinking and leadership skills. Students are not adequately informed about labour market conditions, and often enough, it is their unrealistic expectations, which lead them to graduate unemployment.
9. The transition from university to work could worsen in the future, given that the Turkish economy is undergoing rapid modernization and structural change. Employer needs are already different between firms or regions. There will be additional complexities in the labour markets as different firms/regions undergo different economic transformations.
10. It is critically important that universities as well as MYOs develop better relationships with industry. Their programmes must prepare their students appropriately for the future, and inform and guide students about what to expect in their first jobs. This is not a cosmetic change; it would require a significant cultural change in universities as well as MYOs. The quality of teaching must also improve both in the content and in the teaching style.

11. Finally, given the speed with which scientific advances are being made globally and the manner in which scientific discoveries are creating competitive advantages, it is a matter of national priority for Turkey to be linked critically to these developments. It is essential that some of universities should develop excellence in internationally competitive research.

Vision: differentiation and varieties of excellence

12. This report suggests that the vision for the future would need to have explicit statements about institutional differentiation and varieties of excellence.
13. **Differentiation.** The only way through which all of the above issues can be addressed is through differentiation of higher education institutions so that different institutions respond to different needs through offering a different mix of activities in education, research and service.
14. It is already clear to most stakeholders in Turkey that a sea change is needed so that post-secondary vocational education options as given in MYOs become a viable and reputable option for school leavers. Similarly, open education will need to change – to offer different types of education services – and not just to serve as a last resort degree option for those who could not get sufficiently high scores to get into regular programs. These are the directions of change about which YOK’s draft strategy is explicit.
15. However, differentiation should go further. International experience shows that no country has sufficient financial and human resources to make all universities internationally competitive in cutting edge scientific research. Realistically, a handful (perhaps 5) of institutions should specialize in internationally competitive research, providing leadership in high quality postgraduate education. A larger number of research universities (40-50) would ensure ‘knowledge’ is diffused into the country effectively. There may be some universities established to focus on application-oriented science and technology research (20-30). A yet larger number of institutions would specialize in teaching to ensure excellence in teaching of often professionally relevant subjects (80-100).
16. A culture of ‘relevance’ must also be introduced in all institutions. YOK’s draft report articulates a clear vision of research excellence which combines internal, external and international relevance. This report argues that such culture of external ‘relevance’ is important not only in research, but also in teaching. When each institution takes ‘responsiveness’ to the needs of its own students and their future employers seriously, their missions would be defined differently from the others, and the system would be naturally differentiated.

17. **Varieties of excellence.** The next phase of Turkish higher education development should focus on developing mechanisms to foster varieties of excellence so that institutions with differentiated missions can flourish. First type of excellence has to do with the **quality of curriculum and teaching**, particularly in undergraduate education. The past approach has been an indirect one of raising the staff qualification: requiring a PhD and rewarding them for international publications. In the future, such ‘proxy’ measures would be inadequate (if not counter-productive); direct measures to examine the quality of education would be needed.
18. Second type of excellence would be in **research**. It is critically important for Turkey to establish internationally competitive research culture in a small number of universities. This does not mean that a small number of universities should be given the right to conduct research. They should be required to compete and to demonstrate excellence. PhD training should be offered only by academic groups with demonstrated research culture and capability, and their programs should meet periodic international review in terms of the quality.
19. Third, all higher education institutions, universities as well as MYOs, should be encouraged to undertake ‘**responsiveness**’ or **relevance** seriously so that they are well tuned into the broader need of the society and their labour markets. Encouraging ‘**service**’ activities such as applied research contracts or consultancies is a key step in fostering responsiveness. These activities help individual academics and institutions build key linkages with external stakeholders.

Strategic approaches

20. How could such an alternative path be pursued? It is possible to be explicit in designating different missions to different categories of institutions (as in California). It is also possible to create an enabling environment so that institutional diversity develops over time through establishing loosely defined performance expectations and letting institutions compete for different institutional space (as in the US Carnegie classification).
21. In Turkey, it seems necessary and feasible to take the combination of both approaches. For instance, it is unlikely to be able to revamp the MYO sector without explicit changes in legal and regulatory provisions. However, ‘research’ universities may need to be only loosely defined, and competitively determined, by ensuring that there is fair and merit-based competition for research funds. In the medium term, governance and regulatory changes would be essential for further development of the system. However, the starting point may be to build capacity through implicit mechanisms such as funding so that such explicit legal and regulatory changes can take place effectively.
22. How could Turkey encourage differentiation implicitly? There are several complementary measures.

23. **Changing requirements and incentives for staff.** Individual academics could be encouraged to pursue different avenues of excellence through incentives inherent in performance-based pay. Improving staff conditions would also help address the chronic problem of staff shortages.
24. It is important to recognize that most academic positions in the differentiated system would not require a PhD. The remuneration for academics must improve and become performance-based, which can separately reward excellence in teaching, services as well as research. Important in all institutions would be to ensure that courses taught are 'rationalized' to avoid overcrowded curricula or over-teaching. Overseas scholarships could play a critical role in filling existing gaps in staffing development.
25. **Competitive funding and evaluation as a strategic tool.** The government can establish separate funding arrangements to support innovation and excellence in three different fields: teaching, service and research. It is also possible to design a strategic grant programme to support broader change agenda on a competitive basis. For instance, institutions may compete for funds to support key institutional change agenda such as developing financial management systems or for developing better linkages with industry.
26. Most of the universities in Turkey are today teaching-focussed with very little research and doctoral training. Proposed differentiation could become a reality, not by forced designation but through a process of competition, by allowing only some of these institutions to develop into research universities. Competitive funding schemes could be developed to support research and capacity building. More stringent evaluation requirements could be established for opening and continuing doctoral programs. These conditions would clarify over time, which of the institutions are research-oriented. If there were competitive schemes to support innovation in teaching, these could provide incentives for teaching-oriented institutions to improve their teaching.
27. **Design of new institutions as an opportunity for change.** Opportunities to establish new institutions could be strategically used to emphasize diversity – so that they can also apply competitive pressures on existing institutions. It is often harder to reform an existing institution than to create a new one. Many countries also found that new and dynamic institutions can put competitive pressures on existing institutions. If concerted efforts are made to introduce new types of institutions (such as applied research universities, or professionally-oriented teaching institutions) every time a new institution is needed, the differentiation agenda could be taken forward in an effective way.
28. **Financing, cost recovery and ensuring equity.** This report agrees with YOK that the unit cost must rise, particularly to correct for underpaid staff, high student staff ratios and uneven quality conditions across institutions. For instance, the staff student

ratio should be about 20 on average, though it would be different for different types of institutions, reflecting the differential needs for staff time. The target is slightly larger than YOK's target of 18, reflecting the proposed institutional differentiation, with teaching universities assuming higher ratios.

29. It is already clear that government funding alone is insufficient to meet the needs of the sector. There are also clear rationales why students ought to be asked to contribute directly and more evenly to the cost of their education, particularly at the undergraduate level. First, there is a growing recognition, internationally, that undergraduate education is not a public good – but a private good with significant private returns. Second, there is evidence both in Turkey and internationally that those who benefit from access to undergraduate education tend to come from wealthier families. Third, imposing certain costs of education to users can also make 'users' accountable for their demand and responsible in the decisions they make.
30. It is important to ensure that students from poorer families are not discouraged to attend higher education because of tuition/fees. It is time for Turkey to review options for student finance and measures to ensure equitable access, such as scholarships/loans as well as subsidies to target programmes with large numbers of students from poorer families.
31. **Role of private sector.** This report agrees with YOK's cautious approach in expanding the private sector, though warns that the expected share of enrolments may be higher with a range between 15-25%. International experience shows that private/foundation institutions can bring benefits as well as problems. In many countries, there are a small number of high quality private institutions, which often play a critical role in raising the standard through teaching innovations or effective programme management. At the same time, many countries have also witnessed a proliferation of degree mills and sub-standard programmes.
32. The role of the regulator is to strike a delicate balance between regulatory tightness to ensure quality and openness to permit innovation and change. A transparent environment must be created so that entry conditions as well as conditions for continued operation become clear to all parties. Emphasis on 'input controls' would be gradually replaced by 'ex-post' evaluation. The higher range proposed here (compared with that suggested by YOK) arises because private sector response is likely to grow once a much more transparent mechanism for admitting/rejecting new proposals is in place.
33. **Reviewing options to change OSS.** One key issue is the review of OSS, not only in terms of its impact on influencing student learning, but also in allocating places to students. The discussion about the need for qualitative change in OSS so that it becomes a better instrument to measure student learning from secondary education is outside the scope of this paper and covered by a separate report. However, there is another issue of allocative effectiveness. So long as OSS continues to 'allocate'

MYOs and Open university places along a single metric of OSS scores, MYOs and Open University would continued to have reputations as ‘sub-standard’ options to regular programmes.

34. Higher education institutions can and do contribute to social and economic development. But how well they do so depends critically on whether the tradition of quality and responsiveness is established in the system. The next 20 years represent an unparalleled opportunity for Turkey to introduce differentiation and to establish varieties of excellence. Today’s vision and strategies could have a lasting impact on the future of Turkey.

I. Introduction

1. The Turkish higher education system has been expanding rapidly in the last ten years. The estimated gross and net enrolment rates in 2004 were 30% and 17% respectively, up from 18% and 9% in 1994. Notwithstanding such an expansion, the competition for entrance for higher education remains fierce. There is a strong sense among the public that the number of places in higher education must increase to meet the ever increasing social demand. As Turkey aspires to join the higher income countries, it is essential to have educated human resources to meet the challenges of knowledge economy. As Turkey looks to joining Europe, it is a political imperative to have a well-educated labour force commensurate with the rest of Europe. All the arguments are aligned for further expansion of its higher education system.
2. In a recently published draft strategy document, YOK discusses a possible target of 65% gross enrolment rate by 2025¹. Such a target is not far from (and indeed slightly less than) the level of enrolments projected by SPO, assuming that the past rate of expansion since the 1980s continues into the future. The annual rate of growth would be about 3% - to be compared against 6% in the last 10 years. It would even seem a conservative target. The question is, is that a reasonable target?
3. YOK's draft strategy report makes a critical step in initiating a public debate about the future of higher education.
4. The purpose of this report is to take the debate about the appropriate size and composition of the future further through complementary analyses of demand as well as supply conditions related to higher education in Turkey, and through learning lessons from international experience. The questions addressed include: what is the nature of social demand for higher education; what do labour market signals tell us about the future shape of higher education; what is the nature of supply side constraints in terms of teaching staff as well as financial resources; and what are the lessons from international experience in higher education development? By exploring these questions, the report hopes to illuminate not only what a realistic target might be, but also what strategies may be needed to reach such a target.
5. The report is structured as follows. In the remainder of this first section, the question of what should be target participation rates will be addressed broadly. The first cut analysis of international experience will show that 65% is an ambitious target given international experience.
6. Section II provides analysis of demand and supply conditions in Turkey covering social demand, labour market demand, supply side constraints in terms of staff

¹ Including open university students. It is important to note that published gross enrolment rates rarely match as different agencies have subtly different definitions of enrolments as well as relevant age cohort.

and financial resources. These discussions would help clarify what the key issues may be in implementing expansion.

7. Section III elaborates on one key theme in the sector composition that emerges from Section II, the need for greater differentiation to meet different needs of students and employers. This means that varieties of excellence must be recognized and encouraged by the system, and a set of strategies to enable such developments is discussed.
8. The final section provides a summary of recommendations. The question of what should be the target would be revisited in the light of issues raised in Section II and strategies outlined in Section III.
9. For several topics, the issues to be discussed required far more technical analysis than this paper could cover. These are discussed in greater detail in the two technical annexes on the financing of higher education and labour market conditions.

What should be the target? A first cut analysis

10. Turkish higher education has been expanding rapidly in the last decade. Table 1 shows how the expansion was particularly striking for the last 5 years, with the total enrolments growing at an annual rate of 8% as compared with 5% in the previous five years. It is important to recognize that the past expansion relied heavily on 'new' types of delivery; 40% of the expansion in the last 5 years was in open universities, in evening/secondary programmes in public universities, and in private universities each contributed 20% and 8% respectively. The rapid increase of gross and net enrolments as shown in Table 2, thus also reflects these key structural changes within the sector.
11. How does the level of enrolment in Turkey compare against its international peers? Table 3 shows that there is a large variation across countries in the gross enrolment rates (GER). Turkey's gross enrolment rate at 28% is respectable if on the low side compared against countries with similar levels of per capita income (USD 3000-5000: Brazil 20%; Malaysia 29%, Russia 37% and Argentina 61%)². For countries with GNP per capita range of USD 5-10,000, the range is a little higher but again with a significant variation ranging from Mexico 22% to Poland 59%.
12. Higher income countries have somewhat higher levels of GER, which has also been rapidly growing in the past decade. Western Europe and North American

² This statistic is defined differently from one in Table 2 as it uses internationally comparable classification in coverage by UNESCO which includes distance education provided that they are designed for regular school age students.

- countries had an average gross enrolment rate of 52% in 1991, 61% in 1999 and 70% in 2004 – which shows how much expansion has taken place in the last 5 years. The tentative target of 65% may seem reasonable, as it is a little lower than the current Western average and as it makes no claim to catch up with the moving target coming from the wave of expansion that all the countries will be going through in the next 20 years.
13. However, 65% may be too high when the development dynamics are taken into account. A closer examination shows that except for US, Korea and several Scandinavian countries (Finland, Norway, Sweden), the bulk of developed countries had GER ranging 55-65% in 2004. Turkey's bid to attain 65% would therefore place it squarely within today's standards of fully mature European countries. The economic reality is that Turkey could only catch up with the lowest income levels among developed countries (Greece, Israel, Korea and Portugal) only if a real annual growth of 6-7% in its per capita income can be reached, which is very ambitious.
 14. Moreover, many of European countries have had mature and stable systems of higher education for several decades and so recent expansions were based on solid supply of human as well as financial resources. The UK had an elitist system with low GER of about 20% until 20 years ago. When the systemic expansion was started, their universities had well established traditions of research and teaching quality with abundant supplies of human resources to 'staff' expansion. Turkish bid for 65% by 2025 would mean equivalent expansion without the benefit of such initial conditions.
 15. Also, there is a significant range in the participation ratio; Canada and France at the lower end have theirs in 50s percentiles while the US and Korea are well into 80s percentiles. Such variations at least in part reflect differences in the role of private institutions – many countries with large tertiary sectors also have significant private sector enrolments (e.g. Korea, Poland, US see Table 4), which served 'demand-absorption' functions in their expansion (as will be discussed in para 135).
 16. One thing that is clear from such an international comparison is that there is no magic number. The target should depend on Turkey's own supply and demand conditions in higher education as much as such external benchmarks. The target should also depend on 'how' the expansion takes place in terms of the sector composition, which would in turn influence the quality and role of education offered.

II. Demand and supply conditions

II-1. The nature of social demand

17. Turkey is known for high social demand for higher education. Indeed, strong

social demand is leading to such an acute competition at university entrance that it is becoming a social issue – with private tutoring becoming a big and lucrative business. Expanding the system so that there is sufficient supply of tertiary education opportunities to meet social demand is today an important political agenda. The question is whether expansion is the answer for reducing competition. In this section, five related issues are discussed to explore this question.

18. **Issue 1: Are there not enough places for all?** Although competition is severe, the number of first time applicants (freshly out of secondary education) was roughly the same as the number being placed in 2005 and indeed it has been since the late 1990s (see Table 5). Government statistics (which combine all places including MYOs and Open University) show that in terms of numbers, **there are enough ‘places’ for students coming out of secondary schools every year.** So, the competitive pressures as reflected in the placement/applicant ratio of about a third is not an issue of the ‘flow’ but reflects a large number of ‘other’ OSS applicants who are not coming straight out of high schools, which now functions as a kind of ‘overhang’ in the entrance system.
19. **Issue 2: Who are the ‘overhang’ applicants?** There is evidence that **the bulk of ‘the overhang’ comes from applicants who are repeating OSS** as they were either unsuccessful in being placed or unsatisfied by previous placement. From Table 6, the number of first time applicants is 728,000, which is only marginally greater than 688,000, the number of applicants directly out of secondary schools. Indeed more than 60% of OSS applicants are repeat applicants, roughly the same size as the overhang.
20. **Issue 3: Why are they ‘repeating’ OSS?** There are several possible explanations for OSS repeaters. First, applicants may be determined to get into certain programmes/universities of their choice. The ‘mismatch’ between demand and supply of higher education places may not be one of ‘quantity’ but one of ‘quality.’ 16% of those placed through OSS opt not to register in the programmes in which they were accepted, and such non-registration rate is particularly high for open university and MYOs. Fourteen percent of OSS applicants are already in some higher education programmes, but reapplying with a view to moving to some other place. Three percent of OSS applicants had already graduated from some tertiary programme – and yet they are wanting to start again (Table 7). Students are not looking for ‘any’ place; they are trying for particular types of institutions or programmes.
21. The extent of ‘qualitative mismatch’ is also clear when the proportions of students who are placed in institutions of their top choices are examined. Only 9% of new students are placed in their top choice institutions (Table 8). Only eight universities managed to be within top three choices for at least half of their students (Table 9). The situation appears to be better for high reputation universities known for their quality both for public and private universities.

Institutions in metropolitan cities such as Ankara and Istanbul also appear to be more ‘popular’ than others.

22. These are indicative of the fact that **the social demand in Turkey is not a generic one for any place, but a highly discriminating one in search of quality and reputation.** As will be discussed fully later (in Section II-2 and Technical Annex 3), their desire for ‘better’ programmes is a rational one given large differences in the salaries among graduates from different universities. And their preferences matter; students ‘act’ on their preferences as those in ‘wrong institutions’ retake OSS to re-enter other HEIs. The extent of ‘dissatisfaction’ is such that those seeking to move to different programmes total almost half the size of new applicants.
23. ‘Discriminating’ demand may also reflect a certain lack of viable alternatives. If MYOs were reputed to be of high quality, leading to reasonable jobs, or if school leavers were sufficiently prepared to join the labour market, then there may not be as many students willing to waste many years of work simply to get into certain universities.
24. The second possible explanation is that the quality of secondary school graduates is low and cannot meet the standards required by higher education institutions. There are already indications that this is a problem as indicated by the YOK strategy report. Indeed, the problem is more likely to worsen in the medium term, as the education system continues to expand with increased participation at both secondary as well as higher education levels. The low standard of secondary graduates is a common problem faced by many systems, particularly when the system expands to mass or universal coverage. The US is a classic case where significant investments had to be made both in remedial education in universities and different pathways into degree programmes through community colleges. The goal of raising the quality of secondary education universally is an important one – but a realistic strategy may need to include remedial education at the tertiary level, recognizing that the low quality secondary graduates is not a problem that will vanish over night.
25. There has been significant concern about the negative role of OSS in influencing the quality of secondary graduates. High-stake multiple choice exams such as OSS can often have an unintended consequence of becoming the key incentive/goal for secondary students. Indeed, OSS has been criticized as the key reason for students not attending classes as many opt out to prepare for the exam, and for distracting students away from critical thinking and analysis. If all they do during these ‘overhang’ period is to study tactics to improve their OSS scores, it is unlikely that they would be better prepared for university education.
26. The large number of repeat applicants is also likely a result of several other factors. It must be that the nature of the OSS exam is such that candidates believe they can improve the results significantly by trying again. This would not be an

assumption widely shared by candidates of more comprehensive examination systems in Europe, where candidate capabilities are thoroughly examined. It must also be that candidates believe that once they enter a good university, they are capable of graduating it. Again, this cannot be a reasonable assumption if universities are rigorous in their education and have a reputation of failing undeserving candidates in the course of their programmes. It must also be the case that there is insufficient flexibility in moving from one program to another, once enrolled.

27. **Issue 4: Who is getting access?** Although there is no direct evidence of the family background of students who are being placed in HEI,³ there is some indirect evidence of inequitable access. An OSS survey has shown that students from high-income families, more educated parents, and from large cities are more likely to be placed in higher education. Private tuition (dersane) expenditures also appear to increase the probability of doing better in OSS scores – thereby ensuring better access for those families who can afford private tuition.
28. There are also significant differences in access across gender. Gross enrolment rates were much higher for men than women (35% for men and 26% for women in 2004). Worrying is also the fact that the gender gap does not appear to be narrowing; gross enrolment rates were 21% for men and 14% for women in 1994.
29. Inequitable access such as outlined above is unlikely to be resolved by simple expansion. Explicit actions and targeting would be needed if equitable access is to be enhanced in the future.
30. **Issue 5: What are the financial implications of social demand?** There are a couple of serious financial implications to the government. First, given that these students are likely to be coming from wealthier families, **there is a real issue of reverse equity**. Taxpayers from poorer families may be subsidizing the students from wealthier families to attend higher education (the poorest of the poor are likely to escape both the taxation and opportunity for higher education). Second, **the government pays for students to move from one programme to another, for them to keep on applying until they gain entrance in a satisfactory programme; and for vacancies left behind by these students which means that universities are not operating at full capacity**. By providing ‘free’ university education and ‘free’ examinations, the government may be making it worth while for them to keep trying until they end up scoring high enough to enter their dream programme/university. **The cost to the government would be both the education cost of ‘repeaters’ and cost of administering examinations.**
31. **Issue 6: What are the implications of population increase?** The age cohort population is reasonably stable for both male and female in the next 20 years

³ Owing to household surveys which do not include data on family members living away from home. This is a significant omission which could be relatively easily corrected.

- (Table 10). There is a small ‘bulge’ working its way through, which is expected to lead to a peak in the 18-21 age population around 2017. This means that effort to increase gross enrolment ratio will be harder up to 2017 and would ease off after that.
32. **Coping better with social demand.** The above discussions indicate that there may be at least four ways in which ‘simple expansion’ or ‘more of the same’ may not be the right answer, given the nature of social demand.
 33. First, **creating low quality institutions is unlikely to help ease the entrance competition.** The rapid expansion of Open University in the past decade did not and will not help alleviate the acute competition in the future. Korea and Japan are two other examples known for ‘examination hell.’ Both of their systems experienced rapid expansion unprecedented in the world – and yet the competitive pressures never eased; because their social demand was also highly discriminating with respect to the quality and reputation of the programmes. Investing in quality rather than quantity is a key remedy for alleviating the entrance competition.
 34. Second, **ensuring equitable access would mean special efforts must be made to target students from lower income families, rural areas and women. And their educational needs are likely to be very different from others.** They may not like/be able to live far away from home. They may be motivated to take more vocationally or professionally relevant subjects that are clearly helpful for advancing their earning abilities. They may prefer to take part time courses. Addressing their needs will likely require different approaches both in the content and delivery of higher education.
 35. Third, related to the above, further expansion of the system to become a ‘massified’ or a **‘universal’ system is likely to demand greater differentiation of educational opportunities.** This was the phase in which community colleges became a critical component of the US system, and in which Korea and Ireland made key investments for improving the quality improvement of post secondary vocational education.
 36. Fourth, social demand in the past has been largely ‘unbridled’ with no direct costs for applying for or enrolling in higher education institutions. This is likely to have contributed to ‘excess demand’ for tertiary education. Recently, ‘cost recovery’ has been introduced in limited and uneven ways. Students in normal day programmes at public universities continue to pay virtually nothing while others in evening programmes in public universities or private institutions pay almost full costs. **The question is whether the current approach to cost recovery is appropriate and whether there are alternative approaches** (see para 112181 below).
 37. In addition, **how to ensure access to students from poorer families is already an urgent issue to be examined.** Given the evidence of correlation between OSS

score and Dersane expenditures, it is more likely that ‘richer students’ would dominate the free regular courses, while less wealthy students are more likely to attend full cost evening/secondary programmes.

II-2. Labour market demand⁴

38. There has been high graduate unemployment since the economic crisis in 2001, concentrated among young new graduates (see technical annex 3 for detailed analysis). About 30% of 20-24 year old graduates were unemployed in 2005. Even though there are some signs of improvement as the economy recovers, graduate unemployment remains one area of policy concern.
39. High unemployment does not mean the graduates are not highly appreciated by the market. Indeed, private rates of return for graduates remain high, as graduates enjoy significant wage premia over high school graduates (estimated to range between 11-17%).
40. It is not uncommon to have high unemployment juxtaposed against high private returns, as there are various structural issues in the labour market. For that reason, it is important to take a deeper look at what is happening in the labour market.
- 41. Issue 1: Would ‘expansion’ worsen graduate unemployment?** The overall indication is that the acute unemployment was a result of economic crisis, and that economic recovery will likely create more jobs to bring back unemployment levels to a more reasonable level. However, there are also some serious structural issues in the transition of graduates from university to work.
42. A recent survey shows that annual private returns to higher education are highly differentiated across kinds of institutions. While it is 16% for university graduates, it is only 8% for MYO graduates and 4% for open university graduates. These are equivalent of monthly wages of 1500 YTL/month for university graduates, 1100 YTL/month for MYO graduates and 800 YTL/month for open university graduates.
43. Further, there are indications that private returns vary widely across universities. For universities outside of Istanbul and Ankara, private rates of return drop to 13%. Average monthly wages can vary from 700 YTL for some institutions/programmes to 3000 YTL in the best institution.
44. These suggest that there may be significant variations in the quality of graduates or the way they are valued by the labour market from one institution to another.

⁴ This section draws on a separate summary analysis on labour market conditions as presented in Technical Annex 3 as well as a separate study on labour market conducted by TEPAV/EPRI. The Garden of Forking Paths: Higher Education and the Labour Market in Turkey (2006).

45. Given such highly variable wages, it is not surprising that students are highly selective about institutions they want to attend. A degree from open university is simply not as valuable as a regular university degree, and even among regular university degrees, there is a significant difference in the way they are valued.
46. A variation in the wages in turn is likely to lead to high reservation wage among graduates. Interviews conducted in a recent labour market study⁵ found that university graduates cite frequently, 'being selective about the job' or 'inability to find a job with a satisfactory wage,' as reasons for their unemployment. It will also make the job search process a more complicated one than if there was less quality variation.
47. As will be discussed later, there are also significant variations across employers in the level of expectations they have from graduates. One consistent characteristic of Turkish employers is that they prefer not to recruit fresh graduates; they put significant emphasis on experience.
48. All of the above factors make the transition from university to work a hazardous process. **The expansion of higher education without addressing structural problems will likely worsen graduate unemployment. It is critically important to improve the quality and relevance of programmes, to increase the supply of labour market information so that students are guided through their job search with realistic expectations about their future jobs.**
49. **Issue 2: who are the unemployed?** Although there are only limited data on the profile of the unemployed, data from applicants to ISKUR, a public employment agency, where the unemployed become registered to obtain assistance for placement, provides some insight to the profile of the most problematic unemployed cases. As it is not mandatory for the unemployed to register, the general observation is that registering at ISKUR is one of the last resorts for the unemployed, and that those who are registered at ISKUR likely represent more 'difficult' or desperate unemployment cases than those who are not registered.
50. A recent labour market study showed that MYO and open university graduates were over-represented among ISKUR-registered unemployed.⁶ Of all the ISKUR applicants surveyed, only 11% are university graduates, to be compared against 12% MYO graduates and 8% open university graduates. These figures are to be compared against the numbers of regular university graduates, MYO graduates and open university graduates in 2005; for every 100 university graduates, there were 55 MYO graduates and 50 open university graduates. Since MYOs and Open University have had only a short history, the proportion of university graduates in the labour force is likely to be larger. In other words, given their

⁵ TEPAV/EPRI (2006).

⁶ TEPAV/EPRI (2006).

respective shares in the overall population, these figures suggest that **unemployment is more problematic among open university graduates or MYO graduates than among university graduates.**

51. There are more graduates from less educated families among those registered at ISKUR than among employed graduates. 46% of university graduates registered at ISKUR had fathers whose education was primary education or less, and only 15% had fathers who were university graduates. These are to be compared against 34% and 26% for university graduates in the labour force. For MYO graduates registered at ISKUR, the situation was more acute, with 67% and 7%. **The fact that graduate from educated families are under-represented among ISKUR applicants is likely to reflect the fact that they also tend to go to better universities/programmes and have sufficient social connections to find employment without ISKUR assistance.**
52. **Issue 3: Is there unmet demand?** Interviews with employers suggest that **there is significant unmet demand for MYO graduates but that MYOs today suffer from serious quality problems as well as skills mismatch where MYOs are producing skills that are unrelated to local labour market needs.** The problems of unemployment among MYO graduates may reflect their quality rather than a lack of demand for them.
53. Similarly, **there was some evidence of unmet demand also for university graduates, particularly to match specific local economic conditions.** Most universities appear to operate without any ties to local businesses. Graduates come and go from localities (except in Metropolitan cities) without ‘sticking’ to the local labour markets.
54. Employers were finding that graduates generally came to them with inadequate preparation. Particularly striking was their complaints about their lack of social skills, which were often at a very rudimentary level. Confidence, ability to communicate, leadership skills were high in their priority list along with computer and language skills. It was also evident that employers valued job experience in their recruitment to such an extent that they were often reluctant to recruit fresh graduates without former experience. This is consistent with the previous findings that Turkish firms are less likely to provide training to their employees. Employers also found many graduates to be expecting unrealistic rewards.
55. Different employers complained about the lack of different skills. Traditional firms complained that graduates did not have sufficient behavioral skills, while the main concern of modern firms was the lack of creativity, problems solving or analytical skills.
56. There appears to be significant implicit and explicit unmet demand, with significant diversity among employers in their capacity to handle tertiary graduates as well. **In order to understand and deal with ‘unmet demand,’**

there have to be far better linkages between universities/MYOs and employers at all levels.

- 57. Issue 4: Is the subject mix right?** In 1997, a survey found that 83% of university graduates were finding that their jobs were at least partially related to their jobs, and 90% of them thought that their education contributed to their job performance.
- 58.** A decade later, employers in 2006 were found to be recruiting graduates without paying much attention to their subject specialization, except for broadly defined ‘technical jobs’ where engineering or scientific backgrounds are required.
- 59.** The unemployed graduates in 2006 did not think that their subject specializations were critical for their inability to find jobs – but thought that language skills would be the most helpful way out of unemployment.
- 60.** The above findings from Turkey are too sketchy to suggest the whole story about the question of whether the currently offered subject mix is right. But they are at least consistent with a possibility that Turkey is following a path taken by many other countries. The international experience is that as the higher education system grows and moves from an elitist system (which in Turkey it still was in the mid 1990s given that the impact of new universities in 1992 had not worked its way through) to a ‘mass’ and ‘universal’ system, the jobs for ‘graduates’ also become diverse. The labour markets also change rapidly – with increasing expectations that graduates will change their jobs several times in their life time. **While it is important to have broad numbers right for technical/scientific specializations, detailed specializations matter less and less, particularly at the undergraduate level. Generic analytical skills such as problem solving, ability to learn and creativity matter more than specific subject based knowledge.**
- 61. Issue 5: what are the implications of the changing economic structure?** Turkey already has a significant service sector, with the share of industry already shrinking in its contribution to GDP and employment (Table 11 and 12). And yet, it looks as though it has a long way to go in shifts away from agriculture, particularly for women, as 59% of them were employed in agriculture in the early 2000s. The implication is that **a significant change would be expected in rural areas, which may in turn demand changes in the way human resources are developed.**
- 62. Issue 6: what are the circumstances for women?** There is evidence that women are having greater problems in the labour market than men. The unemployment rate is higher for women at 14% than for men (8%), and is particularly pronounced in rural areas. Unemployment is higher for educated women: 14% for university graduates to be compared against 23% for high school graduates and 6% among primary education graduates.

63. Tough labour market conditions may indeed be the key factor influencing women's decision to participate in higher education, which, as described above, is lower than for men. And yet, as discussed above, the employment structure of women would need to change with modernization, away from agriculture into other sectors. It is not easy to see how higher education can facilitate such a transition, given the current labour market conditions which are not favourable to women. Educational opportunities for women would likely need special attention. For instance, women will likely require educational opportunities close to home, and may have different preferences in terms of learning objectives and subjects to be covered. The question is, are there mechanisms in place to take their needs into account?
- 64. Implications of labour market demand.** Our analysis of labour market suggests that **the variability in the quality of graduates is a serious issue.** Open University is by no means an 'equivalent' to regular undergraduate education, but equally, there are disturbing differences in the returns that graduates can command across institutions. There is no question that the improvement of the quality of higher education is an urgent policy priority.
- 65. It is clear that a sea change is needed in the quality and orientation of MYOs.** There is sufficient indication of employer demand for 'mid-level technical manpower' – and yet, the quality of education is inadequate. There was also significant evidence that little effort had been made in the past to select specializations to be offered at MYO based on local labour market demands. The result was that there were many graduates who could not find jobs, while there were employers with shortages in technical manpower.
66. While there is little sign of a serious mismatch in the subject mix offered in universities, there are specific pockets of unmet demand in different locations. Similarly, while many employers complained about the lack of generic and social skills, modern firms were much more vocal about the need for creativity, problem solving and analytical skills. These are indicative of the fact that labour market needs are highly differentiated across firms and regions – and may change significantly as Turkish economy modernizes.
- 67. There are significant problems in the transition of graduates from education to work. Easing such pressures is likely to require both universities and employers to work together.** They need to develop better understanding of the nature of skills needed, improve career services to inform students and facilitate job search, and develop mechanisms for getting graduates to become experienced, for instance, through well organized internships (TEPAV study showed that many internship programmes are being introduced without the requisite organizational support to make them work well). Indeed, there were far too few linkages between universities and employers in general, with even less ties with local businesses.

68. There are also signs that **there is significant diversity in the nature of employers – with a full range from ‘traditional’ to ‘modern,’ with diverse expectations about what tertiary graduates can do for them.** As the tertiary sector expands, they need to encompass greater diversity to cope with the diversity in the labour markets. At the same time, **tertiary institutions need to be forward looking and be particularly aware of the emerging demand from ‘modern’ firms.**
69. High private returns indicate that **there is considerable potential for cost recovery – so that those who benefit from higher education can pay for its costs.** It is also the case that ‘low returns’ may be associated with ‘low unit costs.’ For instance, it is clear that open university is not at all ‘equivalent’ of regular tertiary education. It may be considerably cheaper to provide, but the labour market returns are also low.
70. It is most likely that those who benefit the highest returns from higher education are those ones who are getting ‘free’ education in the best and most expensive universities with high unit costs (who are also most likely to be the ones coming from more privileged backgrounds).

II-3. Supply side constraints: teaching staff

71. Any expansion would require high calibre teaching staff in greater numbers. YOK calculates that its target would require nearly 6 times greater PhD production per year, up from the present level of 3,000 a year to 17,000 a year by 2025. This is an extremely ambitious goal, based on an expectation that the number of PhDs in Turkey outside higher education should rise to a level appropriate given European Research targets. Even for staffing demand within higher education alone, YOK’ s projection shows that 13,000 PhDs are needed every year by 2025. This has to be compared against the projected level based on the past expansion trend of only 5-6,000 a year in 2025.
72. The supply side constraints in the number and quality of teaching staff in the future is likely to be even more acute, given that a number of higher education institutions are already experiencing significant difficulties in recruiting today. The critical question in expanding the system is: what could be done to alleviate the problem of staff shortage? This section explores six issues around teaching staff to examine this question.
73. **Issue 1: Is PhD necessary for all teaching positions?** One critical factor in staffing in Turkey is the fact that PhD is the minimum requirement for recruitment into all assistant professor positions. And yet, in most cases, their actual job requires intensive undergraduate-level teaching – and the system gives virtually no time or resources for research. The question is, why should narrowly defined research expertise be the pre-requisite, especially when the number of

PhDs is so clearly in short supply and when broadly based ‘scholarship’ may help upgrade the quality of teaching more?

74. Indeed, given this entry requirement coupled with the small size of PhD production, it is not at all surprising that many universities would feel the urgent need to establish their own PhD programmes, if only to develop their own staff, which in turn can lead to proliferation of low quality PhD programmes, which is another source of concern in Turkey today (see para 86).
75. This is not to say that PhD requirement or emphasis in high quality research is unnecessary. On the contrary, establishing research culture is one of key priorities for Turkish higher education. Some universities with a focus on research will continue to expect to recruit PhDs of high quality. However, for the bulk of the institutions, which are teaching-focussed, requirements such as PhDs and international publications are far too indirect and indeed inappropriate as measures for teaching performance.
76. It is also the case that if and when the society is replete with PhD holders, and there emerges a ‘market’ for PhDs, then the minimum requirement for tenured professor positions will be driven up to the PhD level, whether the system needs it or not. However, it is not clear that Turkey has reached such a stage.
77. The point is that the higher education system has come to a stage of development, where differentiation is critical, and where simplistic measures/requirements may not work across all institutions. Different types of input requirements and performance metrics must be established for different kinds of institutions.
78. **Issue 2: is the current level of staff adequate?** The student/staff ratio for Turkey is one of the highest even among comparator developing countries (Table 13). Such a level may be tolerable though undesirable for teaching institutions, and it is consistent with the fact that most universities in Turkey are teaching institutions, with signs of strain, particularly as their teaching loads have been increased substantially through evening programmes in the recent past. It would be essential for some of these universities to become internationally competitive research universities – and that would require an increase in the level of staffing. Even in teaching focussed universities, the number of staff must rise, particularly if the quality of teaching is to improve.
79. **Issue 3: is the system able to attract good candidates?** There is sufficient evidence that the ability for higher education institutions to recruit good staff has eroded over time in Turkey. Open advertisements for university positions often lead to few applications. Table 15 and 16 show graphically the erosion of professor salaries compared with other professions over the past 25 years, particularly for young academics. The fact that the entry level salaries are so low is a significant fact that may explain why it is so difficult to attract good people into the profession. Indeed, entry level salaries are likely to be much more critical

- than the salaries of full professors, because junior academics have less reputation and experience (or time given their professional need to establish themselves as academics) to earn outside universities, which is an established way for professors to supplement their income.
80. However, it is also unrealistic to expect all professors and teaching staff in all postsecondary institutions to retain the high socio economic status through the phase of massification and universalization of higher education. The fact is that they would no longer be a small group of elite, but will be a large group of professionals.
81. In the UK, where professor salaries remained uniform and low through the system expansion of the 1980s and 1990s, universities found that they had to introduce higher salaries for specific cases, particularly in highly competitive fields. The era of differentiated salaries has begun.
82. In the US, there are implicit and explicit ways of differentiating salaries across institutions and fields. Professors are usually paid for 9 months for their ‘professorial job’ at universities, but are free to earn additional income for the rest of the year – either through research contracts or consulting. There is also a long established practice of paying higher salaries in competitive fields or to win high calibre academics. Professors in computer science and business management earn more than professors in history and mathematics. Star academics can expect to negotiate an attractive salary from universities.
83. In Mexico, the base salary remains the same for all ‘professors’ but institutions are increasingly adopting mechanisms to award top up salaries linked with performance. In order to attract high calibre researchers into the system, their National Council of Science and Technology has a highly selective and merit-based system of paying top-up salaries whereby about 10% of teaching staff in higher education can earn significantly more.
- 84. For Turkey as well, differentiated pay for performance, rather than uniform salaries may be a more realistic way forward.**
85. There are other factors that make the profession less attractive particularly for highly educated PhDs. Teaching positions in most universities come with heavy teaching workload with very little room for research. Many Turkish observers pointed out that there is in fact a lot of scope of reducing teaching work load by rationalizing courses by reducing the number and reorganizing the content of courses. By the same token, many universities do not yet have the research culture or intellectual environment which makes these universities attractive for recent PhDs. One way in which some universities managed to get around this problem is to establish a critical mass of talents in a specific field and create a research environment around it. However, this approach would not help in attempting to attract staff for teaching.

86. **Issue 4: is the quality of PhD programmes adequate?** Interviews with academics from a wide range of universities indicated that there is significant concern about the low quality of many of the PhD programmes today. In the old days, only a select group of universities were given the ‘right’ to grant PhDs. Then there was a period when PhD programmes proliferated. Today, all 53 public universities have PhD programmes.
87. The perception is that proposals for new PhD programmes meet serious and good scrutiny today, providing a reasonable quality control for the new ones. However, there are too many programmes which had been created before quality control tightened, and there is virtually no incentive for them to improve their quality.
88. Underlying the concern about the quality of PhD programmes is the concern about the lack of research culture and qualified staff to undertake PhD supervision. There is a curious phenomenon in Turkey of escalating number of publications and plummeting citations. There are evidently more papers written and published – a predictable response given high level of attention given to numbers of publications as a performance metric in the recent past. However, the ‘quality’ of papers may in fact be declining judging from the rapid fall in the number of citations. **Establishing a better research culture and developing communities of practice in research may be one of the most urgent agenda for the future production of PhDs.**
89. **Issue 5: are there special shortages?** There are several different types of shortages which may require special attention. First, many universities which are not located in metropolitan centres find it difficult to recruit qualified people because they are unwilling to relocate to these regions. Several measures were tried in the past to address these issues. For instance, there used to be a requirement for professors to ‘serve’ in outer areas before being promoted. Today, there is a salary supplement to provide incentive for people to work in these universities. The situation has not improved, and many universities feel that they must groom their own graduates to ‘secure’ a supply of their staff.
90. Second, in highly ‘competitive subjects’ where there is industry demand for skills and expertise (e.g. IT), it is harder for universities to recruit new staff – particularly public ones which cannot offer competitive salaries. These ‘competitive fields’ are usually the ones which need to expand to meet growing labour market demand. However, there is some evidence that foundation institutions are managing to attract staff (particularly returnees from overseas) even in these fields by paying higher salaries. This would indicate that the issue is not the lack of candidates but the salary conditions which must be offered to attract these candidates.
91. **Issue 6: is the recruitment process reasonable?** Although open recruitment process where positions are advertised openly has been tried more actively,

- ‘inbreeding’ or recruiting from among own graduates is still the preferred practice in many public universities. In OECD countries, inbreeding is increasingly frowned upon, as it leads to the loss of intellectual dynamism and diversity.
92. One rationale for inbreeding is as given above, inability to attract people to move from one region to another. Another often cited is the fact that it is difficult to ‘evaluate’ people without being able to observe.
93. There is also an issue of how to break out of the old practice. People rightly assume that even openly advertised positions will have ‘favoured’ inside candidates, and would not bother to apply. It would require something like a national campaign to change the mindset of both the recruiting universities and individual candidates.
94. [[It is important to change the mindset and practices so that academic labour market becomes more flexible. The first step must be for establishing better research culture and teaching quality so that institutions have improved capabilities for vetting new candidates.]]
95. **Implications of staff constraints.** It is clear that staff shortages cannot be resolved simply by expanding PhD programmes. A recent report from TUBA discusses how PhD programmes may be improved in the future. While these provide important steps in the right direction, they are not sufficient. True improvement may arise only if professional issues related to the way academic jobs are defined are addressed. These include:
- Limiting the PhD requirement to jobs where research expertise is needed.
 - Getting salaries right – but introducing link with performance
 - Rationalizing the ‘job content’ by rationalizing the teaching workload
 - Building research culture linked with PhD programmes
 - Introducing periodic evaluations for PhD programmes

II-4. Supply side constraints: financial resources⁷

96. Any plan for expansion must take place along with serious considerations about cost implications and about who should pay what. This is because the financial model that works for small system does not necessarily work for a large mass system – and many governments find increasingly large outlays difficult to sustain.
97. Even in Turkey, the fact that the public purse can no longer meet all tertiary education costs is evident from the rapid expansion, not only of private institutions, but also of evening/secondary programmes in public institutions

⁷ This section draws on a separate analysis of financing and unit costs of higher education as presented in Annex 2

- where students pay ‘full costs’ of instruction. The share of government contribution to university budget has declined from nearly 80% in the early 1990s to less than 60% in 2005, with rapidly increasing incomes earned by universities (Table 17), and through student contributions.
98. This section will address six related issues to explore two questions: (a) how much it takes to sustain and build a good higher education system; and (b) who should pay for it.
99. **Issue 1: Is the current level of spending reasonable?** Turkish total expenditures in higher education at 1.2% of GDP is on the lower end of the spectrum in comparison with other developing countries of comparable level of development (1%-2.2%) as well as OECD countries (0.9-2.9%) (Table 18).
100. Turkish per student expenditures as percentage of per capita GDP at 45% is one of the highest, compared against 23-43% in other OECD countries, and per student expenditures has been growing in a healthy way in the past (Table 17). However, when converted to USD in using Purchasing Power Parity (PPP) exchange rates, it is at the lowest end compared with other countries (Table 19). This suggests that the unit expenditure in Turkey at USD 3,900 ‘buys’ less than in other countries. However, as was the case in most other international comparisons, there is quite a wide range in per student expenditures even in Europe ranging from USD 4000 to 10,000 USD, with US as a single anomaly of having USD 18,000.
101. Indeed, there are strong sector-wide signs of underinvestment – particularly in staff as discussed in the previous section. Staff salaries are too low to attract high calibre staff, and there are too few staff to cope with the recent expansion, resulting in one of the highest student-staff ratios even among comparator developing countries.
102. There are also likely to be pockets of underinvestment that are less visible. As table . shows, unit costs vary widely across institutions (see full analysis in Technical Annex 2). Some of the variations are ‘legitimate’ in the sense of reflecting different research intensity or different scale economies given locations. However, there remain significant differences that are not accounted for by such factors.
103. There are several distinct reasons why future expansion is likely to require higher unit costs. First, the past expansion relied heavily upon expanded opportunities through open university, which has been much cheaper in terms of unit costs. In 2005, the overall unit cost including open education was 4160 YTL as compared against 6550 YTL excluding open education. Future expansion, however, will not be able to rely on open education, as in the past. Open education may continue to play a significant role for supporting life long learning – but cannot continue to be a substitute to expanding regular programmes in the

future.

104. Second, existing universities are unlikely to be able to expand further, given past proliferation of evening programmes. Future expansion may require brand new institutions in new campuses, which would make future total unit costs (including investments) much more expensive than the past. Rough estimates show that unit investment cost per student could range between 6000 YTL in social sciences and 23000 YTL for medicine.
105. Third, some universities in Turkey will need to develop into internationally competitive research universities with good quality PhD programmes, which would require more staff as well as facilities than in the past. Indeed, there are already some visible variations in unit costs across institutions in Turkey which are attributable to research intensity. And yet, these ‘differences’ are evidently not sufficient to make them afford adequate research intensity.
106. Fourth, future expansion of public institutions will likely require greater geographical coverage – thereby leading to smaller institutions, which may require higher unit costs.
107. **Issue 2: Can/should government pay for it?** The government contribution to higher education has been growing at a pace that has allowed per-student contribution to increase. However, already at 1.1% of GDP, it is hard to expect a significant increase in the government contribution as a proportion of GDP (Table 18), especially when the government faces competing educational priorities such as expansion and quality improvement of senior secondary education. Indeed, Turkish government’s expenditure as a percentage of GDP is actually already comparable and indeed higher than many others in both comparator developing countries as well as developed countries.
108. In other words, the increase in government contribution may be limited to the ‘real growth’ in GDP, unless Turkish government would like to show extraordinary commitment in investing in higher education.
109. Another question to ask is whether the government should pay the bulk of the costs associated with higher education. As discussed in the above sections, the overall Turkish expenditure on higher education as a percentage of GDP (including private spending) is low compared with other countries, while the government expenditure level appears reasonable compared against the same group of countries. This is mainly because most of the high spending countries such as US, Korea, and Chile have high levels of private expenditures – partly because of tuition charged in public institutions and partly because of private institutions (which will be discussed in detail later).
110. There is a clear difference in perspectives between Old Europe which had well established university systems for long, and late developers, starting with the

- US, which had to build the infrastructure of university systems from a scratch. In many of the late developers, charging tuition in public institutions has been a norm. In Korea, public universities charge about a third of its costs to students, in Spain about 20%, and similar practices exist in a wide range of countries, from Japan, Chile, Indonesia to China. Others have adopted the practice more recently: Malaysia, Mexico and Poland are among those which introduced tuition fees in the 1990s.
111. Even in old Europe, the mood is finally changing. The UK was one of the first to introduce student fees set at about a third of total education costs. The attempts by the French and then the German governments to introduce tuition fees are well known. The movement is catching speed in Germany, as seven out of 16 Landers in Germany have taken steps to introduce it and several others are planning to do so in the near future.
112. The international trend is to increasingly ‘limit’ the public funding role, and move towards cost recovery through student fees, particularly at the undergraduate level. There are three main arguments for such a trend. First, there is a growing recognition that undergraduate education is not a public good, but a private one with significant private returns. There is no reason why ‘individuals’ who will be the direct beneficiaries of education cannot pay for the costs of their education – so long as they can borrow against their future incomes through some new mechanisms.
113. Second, the international experience is that those who benefit from higher education tend to come from the wealthier families. If they are to be ‘subsidized’ by the taxpayers, this will mean that the poor will be subsidizing the rich. Reverse equity inherent in free tertiary education was what turned the public opinion around in the UK when they introduced tuition fees.
114. Third, imposing certain costs of education to users make ‘users’ accountable for their demand. Wherever there are inefficiencies with repetition or dropouts, it is worth asking whether ‘fees’ might make students more accountable and responsible for their educational choice.
115. Two areas where there will be a continued rationale for public funding is research/graduate education and measures to ensure equity. Indeed in many higher income countries, PhD education is not only ‘free’ but subsidized so that the costs of living are covered as ‘research costs.’ This helps not only in providing better incentives to attract bright students, but also in creating better linkages between doctoral education with research.
116. Measures to ensure equitable access to higher education is likely to be critical in a country as large and as diverse as Turkey as will be addressed below and in later sections.

117. **Issue 3: Should all students pay for it?** Systematic cost recovery from students represents one viable way for increasing the financial resources available for the sector. The level of student contribution in public institutions is quite low at about 4%, in spite of high private returns to undergraduate education. There is also some evidence that access is skewed to favour the ‘privileged’⁸. The fact that evening students pay nearly full costs while day students are highly subsidized in public universities is likely to mean that the poorer students are paying more than wealthy students.
118. The current situation in Turkey is akin to giving a large number of scholarships in each institution on the basis of merit. That sounds like a reasonable thing to do – but the question is whether it makes policy sense given Turkey’s issues.
119. Merit-based scholarships to be funded by government make sense if high calibre students need extra inducements for entering higher education. It is not obvious that Turkish students need such inducement. And indeed, if the purpose is to ‘reward merit’ it is far more effective to do so by providing full scholarships for a smaller number of students covering full costs including stipends. Some private universities are already beginning to provide such merit scholarships.
120. It makes sense to introduce cost recovery for all undergraduate students (except those in Open University and students from poorer income families) so that a significant proportion of the costs are covered by those who benefit directly from it. The differences between day and evening students should be evened out, while greater differences may be introduced across subjects or universities reflecting their costs (except for high unit cost cases because of newness or lack of scale economies owing for instance to remoteness).
121. An important group to target would be students from less privileged backgrounds, either in terms of income, regions, ethnicity or gender. They can be targeted in two ways. The government can provide scholarships or subsidize programmes which are popular destinations of these students more heavily than the others. This may mean higher levels of subsidies, for instance, in key universities in deprived regions, where greater proportions of ‘target students’ are enrolled.
122. One option which is worth consideration is to provide higher levels of subsidies for students who opt to attend universities in their own region. This would be similar to State Universities in the US, which charge lower fees to local students. The rationale for such a policy is that students in Turkey too readily move out of their regions to attend universities, and then move away from these regions upon graduation. It is important to have some student movement across

⁸ This percentage may not include fees for evening/secondary programs (see Technical Annex 2), for which there is no separate data available. This means that there may be higher private contributions already.

- the country for national integration – but it is also important for ‘regional’ universities to become a critical player in the regional labour market –and for that they need to have a fair number of local students who are locals.
123. The second way to address equity is to introduce student finance systems that are sensitive to such requirements. Indeed, it is essential that any move in cost recovery is matched by adequate considerations to be given to the impact on the students from lower income families. It is probably the right time for Turkey to begin to explore student finance systems to enable students to borrow against their future incomes. The international experience is that the success of such a system depends on the availability of institutional capacity for ‘repayment collection.’ Broadly, there are two ways to organize these. First, the repayment may be linked to tax collection – as the Australian government has done. Second, banks may be involved in organizing individual loans as in the US. Typically, institutional capacity is too low to institute such repayment mechanisms in developing countries; Turkey may be just about at the threshold where student finance options could be broadened.
124. **Issue 4: Can students pay?** (see Technical Annex 2 for detailed analysis). In public universities, there is an increasing tendency to charge higher fees in their evening/secondary programmes, whose fees range between 600-4600 YTL to be compared against 150-500 YTL for regular programmes. This means that many students are already paying much higher rates for the same programmes. Turkish families are estimated to invest 20% of their disposable incomes or 2800 YTL a year on dersanes. Even the lowest income families are reported to spend 1600 YTL a year on dersanes. These data would indicate that there is reasonable scope for further cost recovery – though care must be taken to ensure that it does not adversely affect students from lower income families.
125. **Issue 5: Can university pay for it?** The prospects for universities to generate their own incomes are of great interest for policy makers interested in cutting costs to government. In Turkey, the record looks good, with public universities raising nearly 40% of their revenues from outside sources. Indeed, Turkey is ahead of many other countries in the level of diversification that universities have achieved in their incomes. However, the reality may not be quite as rosy as that.
126. The bulk of Turkish university incomes appear to arise from university hospitals. This is a unique and interesting situation – quite different from many other countries where university hospitals typically run at a loss. In Turkey, universities charge fees for hospital services as ‘extra incomes’, but expenditures associated with such services, such as additional staff, investing and maintaining expensive facilities are separately accounted for.
127. The international experience shows that universities may diversify sources of income – but these additional incomes rarely lead to their abilities to subsidize

education. With the exception of fund raising to get grants and endowments from private sources, most incomes which are earned for services will have ‘additional costs’ which may not be ‘visible’ but in the end matter.

128. Intellectual property rights provide a good example of income generating opportunities that many governments and universities have high hopes for globally. However, even in the US, it is only a small number of ‘lucky’ research universities (with large research funding from federal and other government sources) who managed to make ‘surplus’ revenues out of IPR, often deriving from a small number of highly lucrative patents. There are also significant costs associated with licensing and policing patents through a group of high calibre professionals. A recent study estimated that only about 50% of US universities have been breaking even since 1992⁹. The same study also showed that the size of total research expenditures, as well as the size and experience of technology licensing offices, appeared to have significant impact on the likelihood of institutions to break even. Three quarters of institutions with more than 250 million dollars per year of research expenditures managed to break even, while for those with less than 50 million dollars, the proportion was about 20%. Over 80% of technology licensing offices with more than 10 FTE staff managed to break even, while for those with less than 5 FTE staff, the proportion was only about 30%. In general, only mature technology licensing offices with over 15 years of experience could expect a positive net contribution.

129. This is not to discourage university efforts to get into new activities such as technology transfer. Indeed, these are critical ‘service’ activities which could bring universities closer to industry and other stakeholders, ensure that universities are more ‘relevant’ to societal needs, and would also help in diversifying their revenue sources. However, it is unlikely that any of these would generate the kind of ‘surpluses’ that are hoped for to subsidize other core activities.

130. **Issue 6: what should be the role of private/foundation institutions?**
Turkey currently has a very small ‘private’ sector in higher education through foundation universities, which enrol 5% of total students or 7% of undergraduates or MYO students (excluding open universities). The sector has expanded rapidly in the recent past, but from a very small base in the 1980s - the first being Bilkent. There have been striking cases of success, with innovative and high quality

⁹ Karrie D. Brandt, Eric J. Stevenson, Janine B. Anderson, Catherine L. Ives, Michael J. Pratt, and Ashley J. Stevens. “Do most academic institutions lose money in technology transfer?” a study by the office of technology development in Boston University presented at AUTM 2005. They estimated that 60%, 50% and 30% of AUTM surveyed universities in the US were breaking even financially, in terms of total incomes (including incomes distributed to inventors); total institutional incomes (excluding inventor incomes but including incomes to departments); and total central administration incomes respectively.

- teaching, which put the best of public institutions under pressure. At the same time, there are already strong signs of highly variable quality among these institutions as many universities are accepting lowest scoring candidates from OSS.
131. The international experience in private institutions is that they often are introduced for their ‘demand absorbing functions.’ They tend to concentrate on low-cost, high demand subjects such as business and IT, largely based on tuition and part-time teaching staff. They tend to lead to huge variations in the quality with many degree mills that operate without necessary infrastructures. The regulator’s roles have often been to emphasize quality standards and to avoid scams.
132. At the same time, most countries have a small number of private institutions that are well managed, innovative and well respected for their commitment to quality. In most countries, such ‘high quality institutions’ have developed over a very long period of time and play key roles in setting standards of the sector at large – as the examples of elite institutions in the US, Japan and Chile demonstrate.
133. The key question is where and how to strike the balance between regulatory tightness to control quality and regulatory openness to permit innovations and change.
134. Again, old Europe is no guide here as most do not have a distinct ‘private sector,’ which are largely funded by their own sources. In countries such as the UK and Netherlands, ‘private institutions’ (such as Oxford or Cambridge) have over time become funded by the government in the same way as other institutions which were created directly by the public sector.
135. Outside of ‘old Europe,’ there are three types of private sector roles. In some Asian countries such as Japan, Korea, Indonesia and the Philippines, private sector institutions were permitted explosive growth, principally to absorb high social demand with which the public sector could not cope. Private sector enrolments rose as high as 70-80%, through teaching oriented colleges/universities including 2 year institutions.
136. In the US, the demand absorbing function was principally played by the public sector – particularly through expansion of teaching universities and community colleges, with private enrolment kept at less than 30%.
137. The third group includes countries such as Malaysia and South Africa, which opened their door to private institutions relatively recently, not least because of the transnational movements of universities from OECD countries proposing to open their campuses.

138. Turkey is probably wise not to follow the Asian example of letting the door open too wide. So far, with a very small sector, it has been possible to deal with each proposal almost case by case. Turkey was fortunate in that there were several private sector groups which were truly committed to high quality education. The past and relatively recent experience of the government forcing closures on some private institutions probably helped in deterring entry from those who had narrow commercial interests.
139. The key question is how to strike a balance between being effective regulators for quality and permitting innovation and differentiation in a climate where there will be increasing demand for greater transparency in entry requirements or quality standards. More specifically, there are three sets of policy decisions which will collectively provide a framework for private participation in higher education:
- a. Entry requirements
 - b. Quality assurance
 - c. Research and graduate education – will government fund research and graduate education in private universities?
140. **Implications of financial constraints.** Turkey is likely to need greater unit expenditure per student in their future expansion as discussed. The cost implications of expansion is therefore significant; it is highly unlikely that the government would be able/willing to foot the total bill for such expansion. It is most likely that a more systematic cost recovery options, combined with student finance measures to ensure all able and worthy students have access to higher education, are necessary. In addition, a much greater and clearer role may be given to private sector through instituting transparent conditions for entry/quality standards.

III. Needed changes in composition: strategies for differentiation

141. The above analyses demonstrate that any plan for expansion of higher education in Turkey must entail measures to enhance differentiation of educational opportunities, so that different needs of incoming students as well as labour markets are met. Differentiation is a critical step in creating a responsive HE sector. It is also clear that differentiation must be accompanied by quality improvement in multiple dimensions, so the system moves away from being a simple hierarchy of quality.
142. **Insufficient differentiation.** So far, all public universities have been developed as though they were to become research universities. This is in spite of the fact that the size of postgraduate education is small (enrolling only 6% of total students), and the level of research activities is still quite low even in the most research active institutions.

143. International experience in massified/universalized higher education systems shows that there is either an implicit or explicit mechanism for differentiating between research oriented universities and teaching oriented universities. Even in massified/universalized systems, needs for graduate or research degrees are quite limited in contrast with high demand for undergraduate degrees. Also, there are usually insufficient financial or human resources for all universities to become research intensive universities.
144. In the US, out of 3400 higher education institutions, over 2000 only give associate or bachelors degrees, with only about 130 universities recognized as 'research universities.' In California, which has long been regarded as a model higher education system for massified/universal systems, there is an explicit difference between the University of California, which are research oriented, and State University system, which is teaching focussed. In Japan or Korea, a majority of private higher education institutions were teaching focussed without any pretence to be research institutions.
145. Differentiation often arises as a result of competitive funding of research activities, which is a common practice to foster excellence in research. Recently, several OECD governments have become much more explicit in promoting research excellence in a small number of institutions so that they can become internationally competitive (e.g. Germany, UK, Japan, Korea)
146. In Turkey, MYOs are supposed to provide vocational post secondary education, but they have not been able to establish credibility among either employers or students to date. Similarly, Open University is supposed to provide a valuable alternative to regular programmes by providing an alternative delivery mode. However, it appears that Open University in Turkey often serves as a last resort for students who would prefer to enrol in regular programmes but cannot because of limited places. In other words, even the supposedly 'differentiated' elements of Turkish higher education are not functioning properly to provide diversified opportunities.
147. In academically oriented societies, vocational higher education can have problems of being 'poor alternatives' to academic ones, unless a special effort is made to promote it. In Korea, which is one country well known for its high social demand for academic education, the government has had to make a concerted effort in improving the quality of vocational postsecondary education through their junior colleges in the 1980s and 1990s (with large investment support from the World Bank). In Ireland, the creation of regional colleges and a couple of practically oriented universities provided the needed diversity and influenced 'old universities' to become more relevant.
148. Open education in most countries is a special delivery mode developed to suit those students who are unable to attend regular programmes given their personal circumstances (e.g. engaged in full time work, living too far to attend

courses etc). Establishing excellence in teaching is possible but requires distinct design and pedagogical approaches. UK's Open University is one successful example which has managed to establish teaching excellence and high student satisfaction with 180,000 students. In the 1990s, many universities started offering distance education based on e-learning. It is today clear that e-learning is not a cheap substitute to regular programmes, but that it requires distinct design, pedagogical consideration and support structures. In distance education, without specialized design, unmotivated students can easily drop out.

149. In Turkey, it is not clear that open education has become an established mode to meet specific educational needs of those who cannot attend regular programmes – in spite of much institutional effort put in to improve the programme quality and design. Instead, circumstances (including the university entrance procedures) appear to have dictated it to be a poor and cheap substitute for regular programmes.

150. **Needed composition.** For a sizable higher education system such as in Turkey, several distinct institutional models may be worth considering.

- a. **International Research Universities** would be distinguished from others through internationally cutting edge research.
 - i. YOK's strategy report mentions the need to build centres of excellence, where a group of researchers create an intellectual environment to support rigorous research. In research universities, most of departments would operate as 'centres of excellence' generating high quality PhDs. These research universities would have well established research culture across the entire institution, with large graduate student enrolments which would be nearly half of student population.
 - ii. Recently among OECD countries, there has been a growing recognition that internationally competitive research excellence demands concentration of resources and differentiation, which is hard to attain implicitly. More countries are making explicit statements about the need for concentrating resources and selectivity to foster excellence. This provides a sharp contrast to the past when most countries upheld much more egalitarian goals and concentration of resources only took place through implicit rather than explicit mechanisms . In the UK, four or five institutions (of the total of about 150 universities) win the bulk of research funding. Government today is explicit in promoting selectivity and is no longer apologetic about the concentration of resources, in contrast to the past when there was a greater push for research excellence in every university.

- iii. In Japan, about 10 old ‘imperial’ public universities and a small number of private universities have long dominated the research scene among 600 or so universities. In 2001, the Japanese government explicitly recognized the need for concentrating resources, and announced the objective to build 30 world class universities.
 - iv. In Turkey, it probably does not make sense to develop any more than 4-5 such institutions of excellence in the next 20 years – though the selection of such institutions is best achieved if left to natural selection through evolution and competition rather than top-down designation. There ought to be some credible ‘contenders’ in each fields, with a handful of institutions poised to join the rank.
- b. **Research universities** would offer both bachelors and masters programmes in most fields and PhD programmes in some but not necessarily all of the disciplines.
- i. This would be a group of universities whose research would be cutting edge nationally, with a limited number of research centres which are research active internationally. They would contribute to keeping Turkey abreast of international developments in science and help make disseminate/use the knowledge in the Turkish context, but they would not necessarily contribute to knowledge creation globally. Centres of excellence in specific fields of regional/local relevance would be developed in these universities, such that collectively they cover most areas of research relevant to Turkey. The best of the group would become the contenders to ‘international research universities.’
- c. **Applied science and technology universities** would mainly offer bachelors and masters’ programmes for professional and technical fields, with staff conducting application oriented research to bring science together with practice.
- i. These would be like Applied Science Universities in Germany or former technical colleges in the UK. Teaching and research should be driven by needs in regional/local economy, and an array of service activities should keep the academics well connected to the professional world.
 - ii. Over time, ‘academic drift’ as well as mature professional demand can influence at least some of these institutions to become similar to research institutions particularly in offering postgraduate programmes and conducting more research. Turkey may find the

same thing 20-30 years from now – but it is worth establishing this kind of institutions both to meet interim human resource demand and to establish a tradition of professional and practical orientation in higher education.

- iii. In the UK, even though former polytechnics are now called universities and no different in title to ‘old’ universities, the majority of them remain a distinct group, maintaining the traditional professional and teaching focus and enrolling large numbers of students. Even those that have become research-oriented today remain distinct in their practically relevant research and provide an important diversity among research universities.
 - iv. Massachusetts Institute of Technology, which is today known as a world class research university has origins in technical and professional education. Grandes Ecoles in France provide another example of centres of excellence in which application oriented research play a critical role in their education. It is their roots of having such practice-orientation, which gives them a unique culture even in their research today.
- d. **Teaching universities** offer mainly bachelors programmes and staff duties do not involve much research activities.
- i. They would contain both professionally oriented teaching institutions similar to former polytechnics in the UK, and academically oriented teaching institutions similar to liberal arts colleges in the US. Both pride themselves in excellence in teaching. Indeed, liberal art colleges are highly reputed institutions providing innovative teaching and competing nationally in recruiting excellent students at par with research universities.
 - ii. They may have non-research oriented master’s programmes, but mainly for individual/professional development rather than as disciplinary training for academic careers. The principal role of these universities is to innovate in education and to meet the social and economic needs of the country.
 - iii. There are other models in which teaching universities are targeted to address local educational needs both in terms of social demand from local students and labour market needs from local employers. California is well known for its well thought out and differentiated system of higher education. One critical component of the system is their State University with nearly 20 campuses which function as teaching universities. “Their job is to prepare students for bachelors and masters degrees in all disciplines for all professions

except law and medicine” and is a much bigger system than the University of California. They supply ‘the professional middle class’ with a focus on the local and regional needs, and tend to have more diversity in the student population including those who are older or part-time.

- iv. In Turkey, some universities, particularly private (foundation) ones, are already becoming excellent teaching-focussed institutions with innovative curriculum similar to liberal arts colleges in the US. Less likely to emerge naturally are those teaching institutions which are focussed on local social and labour market needs outside of metropolitan cities.
- e. **Vocational colleges** (MYOs) offer sub-degree programmes in vocational and professional subjects, to provide mid-level skilled labour.
- i. There are various international variants for this. Some are exclusively focussed on vocational subjects as in most private vocational academies/colleges in Germany and Japan. Others teach vocational as well as academic subjects. Community colleges in the US are a good example of ‘junior college’ type institutions serving not only vocational training needs but also helping students to make a transition to undergraduate programmes in other institutions.
 - ii. One option is to develop ‘regional colleges’ which have capabilities not only associated diploma programmes, but also in trade-based apprenticeship training with possibilities of bridging and continuing to degree-level education (as suggested by another report by the World Bank).
 - iii. Turkey will have to decide what kind of vocational education institutions they would like to develop. Whatever the choice, the development of this segment is likely to require significant commitment of leadership and resources from the government – as is recognized by YOK’s strategy report.
 - iv. Korea, another country that has had a population who all tended to aspire and compete for academic programmes, had to invest significantly, particularly in ensuring the quality of teaching staff in vocational education. They borrowed extensively from the World Bank for education, but whereas the emphasis was for vocational high schools in the 1970s, the emphasis shifted to post-secondary vocational education in their junior colleges in the 1980s. It was through those intensive efforts that the Koreans managed to make postsecondary vocational education a more

desirable one.

- f. **Open education** would offer educational options mainly to those who are physically unable to attend conventional programmes.
 - i. They may be working and may only have the time to study in their free time. Others may have problems attending because of their geographical location. Distance education in general does require significant commitment and discipline on the part of the learners. It has often been successful for motivated students with interest in professional development – for instance in teacher training. Open education can also be a key instrument for lifelong learning – again in support of mature candidates who wishes to continue to learn.
 - ii. The most important issue for open education in Turkey in the coming decades would be to make it distinct from regular programmes. It should not be an option of last resort for high school graduates who would rather attend regular programmes. The desirable size of open education depends on the number of people in employment or in geographical location where they cannot access regular programmes, who nonetheless wish to educate themselves.

151. **Quality: developing varieties of excellence.** It is clear from international experience that ‘quality’ can mean different things in a differentiated higher education system. High quality in research does not necessarily mean high quality in teaching. Australia’s recent report on higher education calls for ‘varieties of excellence’ – and indeed in a massified or universal higher education system, it is not possible to have a single yardstick to measure the quality. Interestingly, in the US, there has been concern that research universities were performing poorly in undergraduate teaching¹⁰. In the UK, research quality is measured and evaluated separately from teaching quality through totally different institutional arrangements. Quality of education must be measured and accounted for differently from that of research.

152. The quality of vocational or professional education requires very different evaluation from academic education or research. Over a decade ago, a for-profit university called Pheonix University shook the US higher education sector by providing professional bachelors and masters courses mainly on the basis of ‘professionals’ as its teaching staff. It took a for-profit company to show that ‘professional education’ can be provided by ‘professionals’ without PhDs.

¹⁰ The Boyer Commission’s report on Reinventing Undergraduate Education: A Blueprint for America’s Research Universities in 1998 highlighted weaknesses prevalent in undergraduate education in American research universities, and outlined a set of recommendations for improvement.

Similarly, open education would have very different challenges and therefore different measures of success from regular programmes.

153. Most performance measures have so far been geared towards ‘research’ and its publications as discussed above. The paradox is that while the past emphasis on the number of publications has led to mushrooming of publications, many observers feel that Turkey has some way to go before the culture of research excellence is established.
154. There is also a sector-wide issue of the low level of ‘responsiveness’ or relevance in both education as well as research. All institutions must recognize the fact that narrowly-defined and theory-focussed disciplinary training is insufficient to meet the emerging need in the labour market. And yet, this dimension of ‘relevance’ is so often neglected or undervalued in the general evaluation of the quality of education. Similarly, too often, the research quality is measured singularly against international competitiveness, without due regards to its relevance or responsiveness to the need of the society at large. YOK’s draft strategy report makes a key point in this respect: research culture in the future must be relevant not only to the internal (domestic) or international scientific community, but also to the external communities – a society at large.
155. How can the missing dimension of ‘responsiveness’ or ‘relevance’ be introduced into a higher education system? This is a key question being asked by many countries around the globe today. In the US, a significant number of universities (e.g. MIT, Cornell, Purdue) developed a public service orientation through their founding as ‘land grant’ universities. Many institutions developed their ethos of ‘being useful’ through practical service work such as agricultural extension, consulting and contracted applied research. There is also a long tradition of the government to expect them to provide solution to public problems. In the UK, the recent emphasis of ‘third mission activities,’ which include consulting, incubation, entrepreneurship education as well as licensing and executive education, is helping individual academics and institutions to develop better links with the external world. In the UK as well as elsewhere, application-oriented research which can help solve societal problems is becoming recognized as important.
156. **Emphasizing ‘service’ activities can be a key avenue for individual academics as well as institutions to build linkages and partnerships with the external world, which in turn help improve relevance of what they do in their teaching as well as research.**
157. **Going forward, it is critically important for Turkey to simultaneously but separately promote excellence in research as well as teaching, and services.**
158. **How to create diversity?** It is possible to be explicit in designating

different missions to different categories of institutions (as in California). It is also possible to deregulate sufficiently to enable institutional diversity to develop and to establish loosely defined performance expectations and let institutional performance determine what institutional space they occupy (as in the US Carnegie classification).

159. In Turkey, it seems necessary and feasible to take the combination of both approaches. For instance, it is unlikely to be able to revamp the MYO sector without explicit changes in legal and regulatory provisions. However, ‘research’ universities may need to be only loosely defined, and competitively determined, by ensuring that there is fair and merit-based competition for research funds. In the medium term, governance and regulatory changes would be essential for further development of the system. However, the starting point may be to build capacity through implicit mechanisms such as funding so that such explicit legal and regulatory changes can take place effectively.
- 160. Building framework for varieties of excellence.** There are several specific complementary policies which are needed to ensure the effectiveness of the implicit approach.
161. One reason why it is difficult to introduce diversity is ‘academic drift’ – an internationally recognized tendency for academics to hold academic matters as more important than practical/professional matters, and to treat ‘research’ as more important and more difficult than ‘teaching.’ As a result, research excellence often dominates discussions about the quality of higher education. It is critically important to move away from such a simplistic assumption.
162. This can be done in three ways. First, individual academics may be encouraged to pursue different avenues of excellence through incentives inherent in performance-based pay (para 163). Second, the government can establish separate funding and evaluation arrangements to support innovation and excellence in three different fields: teaching, service and research (para 167, 171). Third, opportunities to establish new institutions should be strategically used to emphasize diversity – so that they can also apply competitive pressures on existing institutions (para 175).
- 163. Improving salary conditions.** It is clear that academics are not receiving competitive salaries to conduct education, research and service in universities. However, the solution to this problem may not be a one-time increase of base salaries, but an introduction of performance-based pay to ensure that good performance is rewarded.
164. To improve individual incentives for teaching, most Turkish universities already provide salary top-ups for teaching above and beyond 10 hours/week. This is already a beginning of a reasonable performance-based system comprising base salary which covers the first 10 hours of teaching; and top-ups for

individuals teaching extra hours. However, the system only works if the quality, number and coverage of courses offered are managed effectively by the institutions. In most universities, **the critical first step is to rationalize the number and coverage of courses, so that the course offering is not just a sum of what individual academics wish to teach, but a rational set of what needs to be taught given student and societal needs.**

165. To improve individual incentives for research, TUBITAK has already been providing additional salaries for its competitive research grants. This is similar to Mexico – or even the US – where supplementary time for research was bought through research funding. If the recent move to bring up the level of this supplementary salary to a competitive level can be institutionalized over time, this may also provide a sustained solution.

166. It is also important to encourage relevant external service activities such as consulting or project work. Currently, academics either do so unofficially and collect additional salaries or do so officially and are taxed heavily both by the government and the university. It does not make sense for government to tax public university incomes, especially when it is in the interest of the government to encourage universities to generate more incomes – and this is indeed contrary to international experience. It is also worth considering removing completely or reducing at least the level of university overheads as a temporary measure to encourage such service activities. One area which will likely require a separate financial consideration is medical services. This is because in these areas, significant investments have already been made by the government in hospital and other health care facilities so that universities could both train medical professionals, and provide health services to the general public.

167. **Competitive funding.** Most countries with mature higher education systems have competitive research grant programmes to support individual research projects. Spanish research culture has been transformed in the last 20 years through such funding mechanisms. Many countries have developed funding mechanisms to ‘concentrate’ resources in a small number of centres of excellence. The UK distributes its research infrastructure funding to universities on the basis of peer evaluation of research quality. China has long had a system to differentially fund ‘key universities’ as well as ‘key laboratories.’ Japan and Korea recently established highly competitive centres of excellence programmes to create a small number of world class research universities.

168. Some countries have also established special grant programmes for promoting innovation in teaching. In the UK, a competitive funding programme to support centres of excellence in teaching and learning was introduced. Similarly, in Japan, competitive grants to support centres of excellence in teaching were introduced at the same time as those for promoting research excellence – to promote diversity.

169. Finally, most OECD countries are stepping up some form of funding arrangements to encourage universities to undertake key ‘service’ activities including incubation and other services to support entrepreneurs, as well as patenting and licensing. In England, there have been competitive funding programmes to support the development of institutional capacity for such ‘third mission’ activities for nearly a decade. They (along with Scotland) have now introduced permanent and formula-based funding to support these activities. In many OECD countries, such ‘service’ activities are implicitly subsidized by the fact that academics are fully (and adequately) paid for their time through their salaries.
170. Government agencies can play a critical role in promoting key services and establishing key capabilities – as the US example shows. The Department of Agriculture historically played a key role in developing extension capacity in universities, and the Department of Defence contributed significantly to developing IT related research and teaching capabilities in universities. It would be also important for Turkish government agencies to develop capabilities to contract out key contract research activities of national relevance to universities (e.g. in agriculture, defence, energy or health).
171. **Quality assurance.** It is also important for Turkey to review and develop a quality assurance system that matches its future needs. **Monolithic and simplistic ‘requirements’ for public universities (such as PhD requirement for all academics) needs to be replaced by ones that recognize diversity of institutional missions. There must be better mechanisms to evaluate the quality of teaching.**
172. **In research, peer evaluation of PhD programmes – involving international experts wherever possible to bring in transparency and openness - would be an urgent matter given current lack of confidence in the domestic PhD training.**
173. **Building excellence in ‘services,’ which will be a key step in fostering ‘responsiveness’ requires a different level of interventions.** The issue here is not so much to establish an evaluation framework, but to remove obstacles so that activities can begin. It is clear that neither universities nor MYOs have adequate linkages with employers – and indeed broader external stakeholders. It is critically important that steps be taken for universities to:
- i. to recruit and promote young and energetic academics who are experienced/motivated to work with industry and other external stakeholders so that such innovators are systematically part and parcel of universities
 - ii. to develop administrative/support structures for key university-industry relationships including career services, internships,

industrial liaison work to promote joint research/consulting partnerships, entrepreneurship education, spinoffs/incubation, and IPR management

- iii. to bring in 'industrialists' (selected on the basis of individual merit and not to 'represent' key firms) into key consultative forums/committees (advisory boards, programme review committees etc) so that dialogues can be maintained over a sustained period.

174. The role of the government is not only to remove any disincentives, regulatory red-tapes, but also to positively encourage such activities through funding that can function as pump-priming.
175. **Establishing new types of institutions.** This is because it is not easy to 'change' the characteristics of already existing institutions – as the culture and structures of the organizations are well set and their staff have a well developed view of their universities. In most systems, distinct missions and characteristics are best built in at the time of founding.
176. In Ireland, one of the factors for their economic success has to do with building a responsive higher education system. One key move was the establishment of application-oriented technology institutes as a counterpart to academically oriented universities/colleges) and regional colleges as credible institutions to support short-cycle programmes in the 1970s. They not only established the needed emphasis of 'responsiveness' through these institutions, but also pushed existing institutions to take 'relevance' more seriously.
177. In practice, there may be institutions which are hybrids in the sense of combining characteristics of several categories. However, it is important to recognize that diverse systems would have occupants in each of such institutional space.
178. **Private/foundation sector.** YOK's strategy is to keep private enrolments at a low level with an expectation that it may reach 16% of total enrolments¹¹. This is a reasonable approach, but one that can be attained only if public sector expansion is appropriate, and if there is a consistent set of entry standards and an institutional capacity to regulate/police entry.
179. In Turkey, the past approach to proposals for opening private/foundation universities has been to review case by case – largely because of the small number

¹¹ For a country such as Turkey where the private sector is a new phenomenon within higher education, even such a modest target may meet criticisms. However, international experience shows that Turkey is among the minority with such low levels of private institutions.

of proposals and novelty of such institutions. The private/foundation universities have so far been highly regulated by the government, for instance, in the kinds of programmes they could offer as well as the annual intake of students. While the concern over the quality of education is a legitimate one, over-regulation could thwart the possibility of them offering diverse and innovative educational opportunities.

180. Going forward, it will be increasingly important to establish a transparent set of standards applicable to all proposals for new private/foundation institutions, and move away from ‘input control’ to ‘process and output control’ in the form of ex-post evaluation. A stable environment for private/foundation universities and a continued and strong social demand for higher education will likely lead to even greater interest among private entities to open new universities – as many other countries have found. A realistic target may therefore be a range (e.g. 15-25%) - and its final size may be determined largely by the private sector interest, rather than government control.
181. **Increasing cost recovery.** It is unlikely that the government would be able to foot the total bill for the next phase of expansion and quality improvement. **It also makes economic sense, particularly for undergraduate education, to have much greater and systematic cost recovery elements.**
182. Public universities in Turkey has been moving in the direction of having dual tracks: day students who pay little and evening students who pay full costs. However, it is worth recognizing a simple fact that there is often insufficient difference between the two groups to justify such differential charges. **It is much fairer to charge a singular fee to all students who attend similar programmes and award special scholarships to those who truly deserve/need them.**
183. **Student finance.** **It is time for Turkey to consider options for developing systematic student finance programmes** so that: (a) individuals can borrow against their future incomes; (b) disadvantaged groups such as those from low income families, people in rural and remote areas and women, are not further discouraged from attending higher education.

IV. Conclusions

184. **Target enrolment rates.** This report recommends a moderate quantitative target for expansion, recognizing a much more urgent need to introduce greater differentiation and to invest in quality improvement. Simply offering more of the same would not be helpful either for meeting diverse needs of the communities and employers – especially as Turkey goes through complex modernization processes, or for alleviating already intense entrance competition. Students in Turkey are critically aware of quality differences offered by different

programmes and institutions. It is therefore essential that the next 20 years be spent in building appropriate structural foundations both in the composition and the quality of higher education institutions.

185. A proposed target for gross enrolment rate is 45% excluding open university (50-55% including OU, as the role of OU for recent graduates intending to study full-time would be expected to diminish in the future). This target would still roughly double undergraduate student numbers in less than 20 years (Table 21). YOK's target of 65% which includes Open University enrolments (or 57% excluding Open University enrolments) is much more ambitious than suggested in this report.
186. Table 22 gives how such enrolments may breakdown by different types of institutions. It is expected that the number of institutions would be at least double the current number, and likely larger (e.g. 150-180 institutions), as there may be a larger number of small institutions. One key difference between the recommended range and YOK's projection is in the size of PhD programmes, as discussed below.
187. **Differentiation.** The proposed expansion must be accompanied by appropriate diversification of the system. There are already indications that access to higher education is not equitable across socio-economic backgrounds, gender and locations/regions. The next round of expansion can only take place successfully, if higher education institutions can offer diverse educational opportunities to meet such diverse needs. One plausible configuration is given below.
- a. a small number of internationally cutting edge research universities (e.g. 5);
 - b. a number of research universities, many of which will play key research role in regional development, and which will increasingly compete with (a) in some key fields (e.g. 40-50 so that there would be at least one such institution in every other province. In the long term, there could be one such institution in each province.)
 - c. a number of teaching focussed institutions catering mainly to local and regional human resource needs (e.g. 80-100 such institutions nationally)
 - d. applied science and technology universities, which are similar to (c) in their teaching orientation, but with a greater focus on application oriented research (e.g. 20-30 such institutions nationally).
 - e. Vocational colleges – MYOs would need to be upgraded to evolve into higher calibre institutions. A reasonable target may be to have 300-400 such institutions (which would average 5 per province) –down from the current 600, indicating that there must be significant consolidation, closing down, as well as opening up new ones to jump start this category of institutions. A change in the name may also be important to promote a new image.

- f. Open University – re-orientation of open education to working adults and people unable to attend regular programmes will likely mean a reduction of the overall number of places needed.

188. It is important to note that there are a number of different ways in which differentiation can be attained. The above only outlines one such possibility. How each type of institution can be characterized depends very much on how others are characterized. Whether teaching colleges make sense or not depends on what sort of entities MYOs would evolve into, as it is also possible to develop colleges that are hybrid between the two. The above configuration is given mainly to initiate the debate – rather than to be prescriptive.

189. **Improving responsiveness of higher education institutions.** Sector-level differentiation is a necessary but not a sufficient condition for improving the responsiveness of the higher education sector. Concerted effort must also be made both by the institutions and individual academics to build better ties to the rest of the society. Particularly important are ties to employers. The minimum requirement for the government would be to remove any disincentives for universities and their academics to work with industry. Given extremely low levels of interactions between academics and industry, it is even worth positively subsidizing interactions in the short to medium term, until both parties establish better capabilities to work with each other. There must also be mechanisms for universities to recruit more practitioners as their staff and to engage external stakeholders in a sustained dialogue.

190. **Building research excellence.** Differentiation demands a simultaneous building of both teaching excellence and research culture. It is critically important to establish research excellence in research universities and centres of excellence, which are selected on the basis of competition over a period of time. PhD programmes should be established and expanded only in these universities/centres, and should meet a periodic quality review. One priority would be to initiate such a quality review as soon as possible – as the unevenness of quality of programmes is already a serious concern today. The recommended scenarios entail a much slower expansion of PhD programmes than proposed by YOK, with enrolments concentrated in research intensive universities, recognizing the tremendously important need to focus on the quality rather than the quantity at this stage of higher education development.

191. Turkish government has several fellowship schemes to support graduate study overseas. Given a fair number of students who go overseas on their own (often with scholarships/financial aid from recipient countries), it is important that future overseas fellowships are targeted so that they do not ‘replace’ those who would have gone through private means, but used to improve the portfolio of overseas scholars. Particularly important would be to ensure that sufficient numbers of Turkish students are attending (a) the best PhD programmes overseas; and (b) PhD programmes in emerging fields; so that there is an adequate supply of

well- trained PhDs for the higher education system in Turkey.

192. **Improving staff conditions.** It is clear that staff shortages cannot be resolved simply by expanding PhD programmes. True improvement may arise only if professional issues related to the way academic jobs are defined are addressed.
193. The first step would be to recognize that once the system is diversified, not all academic positions would require a PhD. In the long term, when the production of PhD becomes high enough, it is likely that more PhDs would assume fully teaching positions – as in many liberal arts colleges in the US.
194. Second, the remuneration for academics as a profession must improve. However, it is important that any increases in the remuneration be performance based. In the short to medium term in Turkey, this means that it may be appropriate to take a three pronged strategy as outlined above: (a) to pay salary supplement for additional teaching – but based on a ‘rationalized’ set of courses to avoid unnecessary teaching; (b) to pay top up salaries for excellent performers of research; (c) to ease conditions for external work such as consulting and contract research so that academics earn for ‘services’ they provide to the society.
195. Third, the job content of academics must be rationalized – academic jobs should entail different composition of teaching, research/scholarship or service in different types of universities. But important in all universities would be to ensure that courses taught are ‘rationalized’ to avoid overcrowded curricula or over-teaching.
196. **Staff student ratio.** The staff student ratio will vary from one type of institution to another, reflecting the role of teaching. For instance, in research universities, where staff are expected to spend a significant share of their time in research, the ratio would be lower (say, at 10-15) than in teaching universities (for instance, about 25, which is still much lower than the current level). On average, the staff student ratio would be about 20, slightly higher than YOK’s projected target of 18, which largely reflects the proposed differentiation with teaching universities assuming higher ratios.
197. **Size of the private/foundation sector.** This report agrees with YOK’s cautious approach in expanding the private sector, with the expected share of enrolments to range between 15-25% (YOK’s projection was 16%). The main reason why the projected range includes a figure higher than YOK’s is because future private sector response is likely to be much greater than the past. YOK will have to institute a much more transparent mechanism for admitting/rejecting new proposals to form universities, and may find itself in the position to accept much greater number of proposals. Indeed, in most countries, once such a transparent mechanism is introduced, with a social acceptance of private institutions, private interest to establish new universities grows rapidly, particularly if there is strong

willingness to pay on the part of the population as is the case in Turkey.

198. **Financing, cost recovery and ensuring equity.** This report agrees with YOK that the unit cost must rise to correct for underpaid staff and uneven quality conditions across institutions. It is also important to introduce greater cost recovery in the form of evenly distributed tuitions in all public universities in order to increase the available resources. This is important for the sake of equity, as a large proportion of the beneficiaries of tertiary education are expected to come from wealthier segments of the population. At the same time, it is critical that options for students from poorer families are not jeopardized. It is time for Turkey to begin to review options for student finance, to provide scholarships for the needy, to subsidize some programmes where the beneficiaries include large proportions of students from poorer families, and to allow students to borrow against their future incomes.
199. YOK's report comes at a critical time of debate about the future of higher education, which in turn must be a critical part of Turkey's economic development strategy in the 21st century. This report hopes to contribute to enrich the discussion by providing an external perspective based on international experience.

Technical Annex 1:

Tables

Sachi Hatakenaka and Savas Kus

Table 1: Turkish higher education: past trends and current status

	2005		Past trend		Annual increase		% share of increase in last 5 years	Growth rate		Annual growth	
	No.	% share	1995	2000	1995-2000	2000-2005		1995-2000	2000-2005	1995-2000	2000-2005
Universities total	77	100.0%	56	73	2	1		30%	5%	5%	1%
public	53	68.8%	53	53	0	0		0%	0%	0%	0%
private	24	31.2%	3	20	2	1		567%	20%	46%	4%
Non-university HEI	9		6	6	0	1		0%	50%	0%	8%
MYOs	620	100.0%	410	522	11	20		27%	19%	5%	4%
public	588	94.8%	405	498	9	18		23%	18%	4%	3%
private	32	5.2%	5	24	2	2		380%	33%	37%	6%
Total enrolments	2,299,487	100.0%	1,219,663	1,587,038	36738	142490	100%	30%	45%	5%	8%
of which female	983,367	42.8%	478,123	650,317	17219	66610	47%	36%	51%	6%	9%
of which private	110,283	4.8%	9,725	50,845	4112	11888	8%	423%	117%	39%	17%
of which open u	799,053	34.7%	459,460	515,583	5612	56694	40%	12%	55%	2%	9%
of which evening	352,687	15.3%	78,665	207,110	12845	29115	20%	163%	70%	21%	11%
Undergraduates	1,488,362	100.0%	824,021	1,117,740	29372	74124	100%	36%	33%	6%	6%
of which regular	651,410	43.8%	478,254	559,135	8088	18455	25%	17%	17%	3%	3%
of which female	645,840	43.4%	305,990	453,279	14729	38512	52%	48%	42%	8%	7%
of which private	81,730	5.5%	7,350	41,168	3382	8112	11%	460%	99%	41%	15%
of which open u	573,319	38.5%	282,335	372,363	9003	40191	54%	32%	54%	6%	9%
of which evening	181,903	12.2%	56,082	145,074	8899	7366	10%	159%	25%	21%	5%
MYOs	666,808	100.0%	326,116	382,491	5638	56863	100%	17%	74%	3%	12%
of which female	277,885	41.7%	146,664	167,038	2037	22169	39%	14%	66%	3%	11%
of which private	17,467	2.6%	1,753	5,410	366	2411	4%	209%	223%	25%	26%
of which open u	225,734	33.9%	177,125	143,220	-3391	16503	29%	-19%	58%	-4%	10%
of which evening	170,784	25.6%	22,583	62,036	3945	21750	38%	175%	175%	22%	22%
Masters	111,814	100.0%	49,853	65,068	1522	9349	100%	31%	72%	5%	11%
Of which female	46,835	41.9%	17,563	22,266	470	4914	53%	27%	110%	5%	16%
Of which private	11,086	9.9%	622	4,267	365	1364	15%	586%	160%	47%	21%
PhD	32,503	100.0%	19,673	21,739	207	2153		11%	50%	2%	8%
Female	12,807	39.4%	7,906	7,734	-17	1015	47%	-2%	66%	0%	11%

Source: OSYM Higher Education Statistics, YOK statistics

Table 2: Enrolment rates

		1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Net enrolment ratio for Secondary School	Total	37	39	39	38	39	40	44	48	51	53	55	57
	Male	42	44	43	41	42	44	48	53	56	58	59	61
	Female	31	33	34	34	35	37	39	43	45	48	51	52
Gross enrolment ratio for Secondary School	Total	51	53	53	53	57	59	61	68	81	81	81	85
	Male	61	63	62	60	65	67	70	77	93	91	90	95
	Female	40	43	43	45	49	50	52	58	68	71	72	75
Net enrolment ratio for Higher Education (%)	Total	9	9	9	10	11	12	12	13	15	15	17	
	Male	10	11	11	11	12	13	13	14	16	17	18	
	Female	7	8	8	9	10	11	11	12	14	14	15	
Gross enrolment ratio for Higher Education (%)	Total	18	18	19	20	22	21	22	23	27	28	30	
	Male	21	22	24	23	25	25	26	27	31	32	35	
	Female	14	15	16	16	18	17	19	20	23	24	26	

Source: Ministry of National Education, Education Statistics of Turkey 2005-6

Note: Enrolment rates quoted by different agencies (even within Turkey) vary somewhat depending on enrolment coverage (e.g. open university students, graduate students) as well as age group covered. The above table uses MONE's data, mainly to show the changes and trend over time.

Table 3: International comparison of higher education statistics

Region	Gross Enrolment Rate		Female students by level (%)			Share of total enrolments		Total enrolment Public and private. Full and part time
			2004			% 5B	% postgraduates	
	1999	2004	5A	5B	6			
Turkey (p)	22	28	42	43	37	30.4%	1.2	1,972,662
Upper middle income countries								
Argentina (p)	49	61	56	70	57	25.8%	-	...
Brazil (p)	14	20	...	...	...	NA	...	...
Chile (p)	38	43	48	46	40	16.7%	-	580,815
Czech Republic (p)	26	37	50	67	36	11.1%	7.3	318,858
Hungary (p)	33	52	57	61	44	3.9%	1.9	422,177
Poland (p)	44	59	58	80	47	1.1%	1.6	2,044,298
Russian Federation (p)	...	68	58	55	...	23.7%	...	...
Malaysia (p)	23	29	58	52	34	50.9%	0.7	...
Mexico (p)	18	22	50	41	39	3.0%	-	2,322,781
Higher income countries								
Australia (p)	66	72	55	51	49	17.0%	3.7	1,002,998
Canada (p)	59	57	58	52	45	25.9%	2.2	...
Cyprus	21	32	77	43	42	80.4%	0.5	20,849
France (p)	52	56	55	56	47	25.0%	4.7	2,160,300
Germany (p)	...	...	47	61	...	NA	...	...
Greece (p)	47	72	53	49	43	33.7%	3.4	597,007
Ireland (p)	45	55	57	54	47	36.5%	2.1	188,315
Israel (p)	48	57	57	51	53	20.2%	2.6	301,227
Italy (p)	47	63	56	66	51	1.1%	1.9	1,986,497
Japan (p)	45	54	41	63	29	24.8%	1.8	4,031,604
Republic of Korea (p)	66	89	37	36	29	40.5%	1.1	3,223,431
Portugal (p)	45	56	57	53	55	1.4%	4.0	395,063
Spain (p)	55	66	54	51	51	14.5%	4.2	1,839,903
United Kingdom (p)	60	60	55	67	44	23.8%	4.0	2,247,441
United States (p)	73	82	56	60	51	21.6%	2.2	16,900,471
North America Western Europe	61	70	...	...	...	21.3%	3	

Source: UNESCO GED 2006

Table 4: Private share in undergraduate education

	% share
Turkey	4
Bulgaria	13
Czech Republic	4
Estonia	22
Hungary	14
Mexico	34
Poland	28
Romania	25
France	12
Ireland	6
Italy	6
Japan	73
Korea	77
Portugal	27
Spain	12
Switzerland	3
US	27

Source: OECD 2005 and Slantcheva 2005

Table 5: Secondary tertiary transition in Turkey

		1990	1995	2000	2001	2002	2003	2004	2005
No. of secondary graduates	A		551,124	532,952	507,363	530,259	683,350	605,986	
No. of OSS applicants among high school graduates	B	336,651	469,353	499,220	504,620	547,094	530,419	712,966	687,501
Total no. of OSS applicants	C	892,975	1,265,103	1,414,223	1,471,197	1,817,590	1,502,605	1,786,883	1,831,696
Placement	D	196,253	383,974	440,028	471,371	614,125	554,566	574,867	680,924
4 + Year Undergraduate		78,707	139,744	160,247	166,963	169,835	187,192	192,632	
2 Year Undergraduate		34,158	76,602	117,873	129,462	158,895	160,606	164,251	
Open University 4 + Year Undergraduate		83,388	82,895	98,764	110,779	107,754	125,878	124,136	
Open University 2 Year Undergraduate		0	84,733	63,144	64,167	177,641	80,890	93,848	
Ratios									
No. of OSS highschool applicants/secondary graduates	B/A		85%	94%	99%	103%	78%	118%	
% of OSS applicants still in highschool	B/C	38%	37%	35%	34%	30%	35%	40%	38%
Secondary graduates/placement	A/D	172%	122%	113%	107%	89%	96%	124%	101%
Placement/applicant ratio	D/C	22%	30%	31%	32%	34%	37%	32%	37%

Source: MONE Education statistics of Turkey 2005-6. MONE, Higher Education Council, Turk Yuksekogretiminin Bugunku Durumu Kasim 2005, SPO Economic and Social Indicators 1950-2004

Table 6: Number of times OSS taken by OSS applicant in 2005

No of times OSS taken	No of applicant	Share (%)	Cumulative Share (%)
1	728,343	39	39
2	533,148	29	68
3	257,923	14	82
4	147,838	8	90
5	83,997	5	95
6	46,044	2	97
7	24,047	1	98
8	12,565	1	99
9	7,291	0	99
10 or more	10,422	1	100
Total	1,851,618	-	-

Source: YOK draft strategy report 2006

Table 7: Placement of OSS applicant by status

Graduation Status	Applicant	%	Total placed	%	success rate
Applicants from general highschool					
Last year student in a highschool	510,620	38%	114,544	25%	22%
Graduated from high school, but not placed before	649,734	48%	291,628	63%	45%
Graduated from a higher education institution	35,169	3%	9,930	2%	28%
Placed in a higher education institution but not graduated	164,169	12%	49,924	11%	30%
Total	1,359,692	100%	466,026	100%	34%
Applicants from vocational high school					
Last year student in a highschool	176,881	37%	90,306	42%	51%
Graduated from high school, but not placed before	171,483	36%	77,499	36%	45%
Graduated from a higher education institution	26,988	6%	9,875	5%	37%
Placed in a higher education institution but not graduated	96,652	20%	37,218	17%	39%
Total	472,004	100%	214,898	100%	46%
All applicants					
Last year student in a highschool	687,501	38%	204,850	30%	30%
Graduated from high school, but not placed before	821,217	45%	369,127	54%	45%
Graduated from a higher education institution	62,157	3%	19,805	3%	32%
Placed in a higher education institution but not graduated	260,821	14%	87,142	13%	33%
Grand total	1,831,696	100%	680,924	100%	37%

Source: YOK draft strategy report 2006

Table 8: Number of students for whom the placement was among their top choices

University	Total Placements	Top choice	%	Within top 3 choices	%
PUBLIC UNIVERSITIES					
ABANT IZZET BAYSAL ÜNİVERSİTESİ (BOLU)	2,744	107	4	417	15
ADNAN MENDERES ÜNİVERSİTESİ (AYDIN)	1,683	43	3	171	10
AFYON KOCATEPE ÜNİVERSİTESİ (AFYONKARAHISAR)	3,525	131	4	402	11
AKDENİZ ÜNİVERSİTESİ (ANTALYA)	1,885	164	9	415	22
ANADOLU ÜNİVERSİTESİ (ESKİSEHIR)	3,015	344	11	803	27
ANKARA ÜNİVERSİTESİ	4,791	618	13	2	38
ATATÜRK ÜNİVERSİTESİ (ERZURUM)	6,625	322	5	941	14
BALIKESİR ÜNİVERSİTESİ	2,596	142	5	404	16
BOGAZIÇI ÜNİVERSİTESİ (İSTANBUL)	1,572	711	45	1	79
CELAL BAYAR ÜNİVERSİTESİ (MANISA)	2,851	82	3	358	13
CUMHURİYET ÜNİVERSİTESİ (SIVAS)	2,942	92	3	333	11
ÇANAKKALE ONSEKİZ MART ÜNİVERSİTESİ	2,905	133	5	416	14
ÇUKUROVA ÜNİVERSİTESİ (ADANA)	3,780	376	10	981	26
DICLE ÜNİVERSİTESİ (DIYARBAKIR)	2,965	249	8	768	26
DOKUZ EYLÜL ÜNİVERSİTESİ (İZMİR)	5,039	527	10	1	29
DUMLUPINAR ÜNİVERSİTESİ (KÜTAHYA)	3,195	58	2	223	7
EGE ÜNİVERSİTESİ (İZMİR)	4,276	391	9	1	25
ERCIYES ÜNİVERSİTESİ (KAYSERİ)	4,048	227	6	674	17
FIRAT ÜNİVERSİTESİ (ELAZIG)	2,849	176	6	542	19
GALATASARAY ÜNİVERSİTESİ (İSTANBUL)	164	50	30	103	63
GAZİ ÜNİVERSİTESİ (ANKARA)	11,058	1,879	17	4	37
GAZİANTEP ÜNİVERSİTESİ	1,630	111	7	313	19
GAZİOSMANPASA ÜNİVERSİTESİ (TOKAT)	1,340	15	1	73	5
HACETTEPE ÜNİVERSİTESİ (ANKARA)	4,169	773	19	2	43
HARRAN ÜNİVERSİTESİ (SANLIURFA)	833	21	3	94	11
İNÖNÜ ÜNİVERSİTESİ (MALATYA)	2,496	136	5	438	18
İSTANBUL ÜNİVERSİTESİ	7,167	898	13	3	38
İSTANBUL TEKNİK ÜNİVERSİTESİ	2,565	270	11	966	38
İZMİR YÜKSEK TEKNOLOJİ ENSTİTÜSÜ	279	16	6	53	19
KAFKAS ÜNİVERSİTESİ (KARS)	1,509	19	1	72	5
KAHRAMANMARAS SÜTÇÜ İMAM ÜNİVERSİTESİ(KAHRAMANMARAS)	1,531	41	3	115	8
KARADENİZ TEKNİK ÜNİVERSİTESİ (TRABZON)	6,041	266	4	870	14
KIRIKKALE ÜNİVERSİTESİ	1,763	28	2	159	9
KOCAELİ ÜNİVERSİTESİ(KOCAELİ)	4,274	169	4	690	16
MARMARA ÜNİVERSİTESİ (İSTANBUL)	6,277	1,230	20	3	46
MERSİN ÜNİVERSİTESİ(MERSİN)	2,065	147	7	397	19
MİMAR SİNAN GÜZEL SANATLAR ÜNİV.(İSTANBUL)	496	77	16	179	36
MUGLA ÜNİVERSİTESİ	2,376	149	6	390	16
MUSTAFA KEMAL ÜNİVERSİTESİ (HATAY)	1,524	94	6	236	15
NİĞDE ÜNİVERSİTESİ(NİĞDE)	1,676	66	4	188	11
ONDOKUZ MAYIS ÜNİVERSİTESİ (SAMSUN)	4,450	255	6	801	18
ORTA DOĞU TEKNİK ÜNİV. (ANKARA)	2,891	592	20	2	54
OSMANGAZI ÜNİVERSİTESİ (ESKİSEHIR)	2,400	48	2	211	9

University	Total Placements	Top choice	%	Within top 3 choices	
				top 3 choices	%
PAMUKKALE ÜNİVERSİTESİ (DENİZLİ)	3,460	174	5	522	15
SAKARYA ÜNİVERSİTESİ	3,799	111	3	449	12
SELÇUK ÜNİVERSİTESİ (KONYA)	8,584	638	7	2	25
SÜLEYMAN DEMİREL ÜNİVERSİTESİ (ISPARTA)	4,183	138	3	519	12
TRAKYA ÜNİVERSİTESİ (EDİRNE)	2,193	105	5	275	13
ULUDAG ÜNİVERSİTESİ (BURSA)	4,657	306	7	926	20
YILDIZ TEKNİK ÜNİVERSİTESİ (İSTANBUL)	2,811	84	3	586	21
YÜZÜNCÜ YIL ÜNİVERSİTESİ (VAN)	1,799	77	4	241	13
ZONGULDAK KARAEMLAS ÜNİVERSİTESİ	2,163	63	3	216	10
GÜLHANE ASKERİ TIP AKADEMİSİ (ANKARA)	156	94	60	115	74
GEBZE YÜKSEK TEKNOLOJİ ENSTİTÜSÜ	155	14	9	32	21
total	168,220	14,047	8	18,098	11
PRIVATE UNIVERSITIES					
ATILIM ÜNİVERSİTESİ (ANKARA)	767	37	5	173	23
BAHÇESEHIR ÜNİVERSİTESİ (İSTANBUL)	879	128	15	392	45
BASKENT ÜNİVERSİTESİ (ANKARA)	1,704	218	13	601	35
BEYKENT ÜNİVERSİTESİ (İSTANBUL)	414	43	10	140	34
BILKENT ÜNİVERSİTESİ (ANKARA)	2,442	698	29	1	60
ÇAG ÜNİVERSİTESİ (MERSİN)	368	38	10	127	35
ÇANKAYA ÜNİVERSİTESİ (ANKARA)	735	59	8	221	30
DOGUS ÜNİVERSİTESİ (İSTANBUL)	425	118	28	197	46
FATİH ÜNİVERSİTESİ (İSTANBUL)	1,089	177	16	501	46
HALIÇ ÜNİVERSİTESİ (İSTANBUL)	612	57	9	191	31
ISIK ÜNİVERSİTESİ (İSTANBUL)	525	63	12	171	33
İSTANBUL BILGI ÜNİVERSİTESİ	1,820	377	21	922	51
İSTANBUL KÜLTÜR ÜNİVERSİTESİ	981	133	14	399	41
KADIR HAS ÜNİVERSİTESİ (İSTANBUL)	615	74	12	233	38
KOÇ ÜNİVERSİTESİ (İSTANBUL)	699	144	21	404	58
MALTEPE ÜNİVERSİTESİ (İSTANBUL)	718	89	12	256	36
SABANCI ÜNİVERSİTESİ (İSTANBUL)	650	176	27	429	66
YEDİTEPE ÜNİVERSİTESİ (İSTANBUL)	2,406	398	17	1	44
İZMİR EKONOMİ ÜNİVERSİTESİ	1,019	192	19	492	48
İSTANBUL TİCARET ÜNİVERSİTESİ	657	99	15	255	39
UFUK ÜNİVERSİTESİ (ANKARA)	118	4	3	31	26
YASAR ÜNİVERSİTESİ (İZMİR)	110	6	5	33	30
OKAN ÜNİVERSİTESİ(İSTANBUL)	455	18	4	90	20
TOBB EKONOMİ VE TEKNOLOJİ ÜNİV.(ANKARA)	440	56	13	209	48
Total private	20,648	3,402	16	6,470	31
Grand total	188,868	17,449	9	24,567	13

Source: YOK draft strategy report 2006

Table 9: Number of universities with good record of student choice

	No.	%
No. of universities which was the top choice for more than half of their new students	1	1%
No. of universities which was within the top three choices for more than half of their new students	8	10%
No. of universities which was the top three choices for more than a third of their new students	28	36%
Total no. of universities	78	

Source: YOK draft strategy report 2006

Table 10: Population projections for relevant age groups

Age	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
18	1231	1245	1274	1300	1326	1351	1372	1390	1410	1432	1439	1421	1387	1354	1317
19	1239	1230	1244	1273	1299	1324	1349	1371	1389	1410	1433	1439	1420	1386	1352
20	1263	1239	1229	1242	1271	1297	1323	1348	1370	1389	1410	1432	1437	1418	1383
21	1286	1263	1238	1227	1241	1269	1295	1321	1347	1370	1389	1409	1430	1436	1415
22	1308	1285	1262	1236	1226	1239	1267	1294	1320	1347	1369	1388	1408	1429	1433
23	1327	1307	1283	1260	1234	1224	1237	1266	1293	1320	1346	1369	1387	1406	1426
24	1340	1325	1305	1281	1257	1232	1222	1236	1265	1292	1320	1346	1368	1385	1403
25	1349	1339	1324	1302	1279	1256	1230	1221	1235	1264	1292	1319	1344	1365	1382
26	1357	1347	1337	1322	1301	1277	1254	1229	1220	1234	1265	1292	1318	1343	1363
27	1365	1355	1345	1336	1320	1299	1276	1253	1228	1219	1234	1264	1291	1316	1340
18-21	5019	4977	4.985	5.042	5.137	5.241	5.339	5.43	5.516	5.601	5.671	5.701	5.674	5.594	5.467
19-22	5096	5017	4973	4978	5037	5129	5234	5334	5426	5516	5601	5668	5695	5669	5583
20-23	5184	5094	5012	4965	4972	5029	5122	5229	5330	5426	5514	5598	5662	5689	5657

Source: Institute of Statistics

Table 11: International comparison of economic structure: contribution to GDP

Countries	Population (million)	GNP per capita (USD)	GDP structure							
			Agriculture		Industry		Manufacturing		Service	
			1990	2004	1990	2004	1990	2004	1990	2004
Turkey	72	3,750	18	13	30	22	20	14	52	65
Upper middle income countries										
Argentina	38	3,580	8	10	36	36	27	24	56	54
Brazil	184	3,000	8	10	39	40	25	11	53	50
Chile	16	5,220	9	4	42	45	20	19	50	52
Croatia	4	6,820	10	8	34	30	28	19	56	62
Czech	10	9,130	6	3	49	38		26	45	59
Estonia	1	7,080	17	4	50	29	42	18	34	67
Hungary	10	8,370	15	3	39	31	23	23	46	66
Latvia	2	5,580	22	4	46	23	35	13	32	73
Lithuania	3	5,740	27	6	31	34	21	21	42	60
Malaysia	25	4,520	15	10	42	50	24	31	43	40
Mexico	104	6,790	8	4	28	26	21	18	64	70
Poland	38	6,100	8	3	50	33		20	42	64
Russia	144	3,400	17	5	48	35			35	60
Slovak	5	6,480	7	4	59	30		19	34	67
South Africa	46	3,630	5	3	40	32	24	20	55	65
Venezuela	26	4,030	6	5	61	52	15	18	34	44
High Income Countries										
Australia	20	27,070	4	3	29	26	14	12	67	71
Austria	8	32,280	4	2	32	31	21	20	64	67
Belgium	10	31,280	2	1	33	25		18	65	73
Canada	32	28,310	3		32		17		65	
Denmark	5	40,750	5	2	27	25	18	16	69	73
Finland	5	32,880	7	3	34	31	23	23	59	66
France	60	30,370	4	3	27	22		14	70	76
Germany	83	30,690	2	1	38	29	28	23	61	70
Greece	11	16,730	11	7	28	23		12	61	70
Ireland	4	34,310	9	3	35	41	28	31	56	56
Israel	7	17,360								
Italy	58	26,280	4	3	34	28	25	20	63	70
Japan	128	37,050	3	1	39	31	27	21	58	68
Korea	48	14,000	9	4	42	41	27	29	50	56
Netherlands	16	19,990	5	2	31	26	19	15	65	72
Norway	5	51,810	4	2	36	39	13	11	61	59
Portugal	11	14,220	9	4	32	27	22	17	60	70
Slovenia	2	14,770	6	3	42	37	34	27	52	61
Spain	43	21,530	7	4	34	29		16	59	67
Sweden	9	35,840	3	2	32	29		21	64	69
Switzerland	7	49,600	3	1	33	29	22	20	64	70
UK	60	33,630	2	1	35	26	23		63	73
US	294	41,440	2	1	28	22	19	15	70	77

Source: World Bank, World Development Indicators 2006

Table 12: International comparison: employment structure

Countries	Population (million)	GNP per capita (USD)	Employment structure											
			Agriculture				Industry				Service			
			Male		Female		Male		Female		Male		Female	
			1990- 92	2000- 2004	1990- 92	2000- 2004	1990- 92	2000- 2004	1990- 92	2000- 2004	1990- 92	2000- 2004	1990- 92	2000- 2004
Turkey	72	3,750	33	24	72	59	26	26	11	13	41	49	17	28
Upper middle income countries														
Argentina	38	3,580	0	2	0	1	40	28	18	9	59	70	81	90
Brazil	184	3,000	31	23	25	16	27	28	10	13	43	49	65	71
Chile	16	5,220	24	18	6	5	32	29	15	12	45	53	79	83
Croatia	4	6,820		16		18		39		19		45		64
Czech	10	9,130	9	6	7	3	55	550	33	27	36	45	61	70
Estonia	1	7,080	23	9	13	4	42	42	30	23	50	57	73	
Hungary	10	8,370	15	8	8	3	42	42	29	24	44	50	64	74
Latvia	2	5,580	25	17	14	10	37	35	26	18	38	47	59	71
Lithuania	3	5,740		21		15		35		22		44		64
Malaysia	25	4,520	23	16	20	11	31	35	32	27	46	49	48	62
Mexico	104	6,790	33	22	10	5	25	28	19	20	41	51	71	75
Poland	38	6,100		19		18		38		17		43		65
Russia	144	3,400		12		8		39		23		48		70
Slovak	5	6,480		8		4		49		26		43		71
South Africa	46	3,630		13		7		33		14		54		79
Venezuela	26	4,030	17	16	2	2	32	25	16	11	52	59	82	86
High Income Countries														
Australia	20	27,070	6	5	4	3	32	30	12	10	62	65	85	87
Austria	8	32,280	6	5	8	6	47	43	20	13	46	51	72	81
Belgium	10	31,280	3	2	2	1	38	35	13	12	57	63	84	87
Canada	32	28,310	6	4	3	2	31	32	11	11	63	64	86	87
Denmark	5	40,750	7	5	3	2	37	34	16	12	56	61	81	86
Finland	5	32,880	12	7	6	3	39	39	15	13	49	54	78	84
France	60	30,370												
Germany	83	30,690	4	3	4	2	61	44	24	17	45	53	72	81
Greece	11	16,730	20	15	26	18	32	30	17	11	48	56	56	71
Ireland	4	34,310	19	10	3	2	33	39	18	13	48	51	78	85

Countries	Population (million)	GNP per capita (USD)	Employment structure											
			Agriculture				Industry				Service			
			Male		Female		Male		Female		Male		Female	
			1990- 92	2000- 2004	1990- 92	2000- 2004	1990- 92	2000- 2004	1990- 92	2000- 2004	1990- 92	2000- 2004	1990- 92	2000- 2004
Israel	7	17,360	5	3	2	1	38	33	15	11	57	64	83	88
Italy	58	26,280	8	6	9	4	38	40	22	20	54	55	70	76
Japan	128	37,050	6	5	7	5	40	36	27	19	54	59	65	75
Korea	48	14,000	12	8	17	10	41	34	28	18	47	58	55	72
Netherlands	16	19,990	5	4	3	2	33	29	10	9	60	64	82	87
Norway	5	51,810	8	6	3	2	35	35	10	9	57	60	86	89
Portugal	11	14,220	11	12	13	14	40	43	24	20	49	45	64	66
Slovenia	2	14,770		8		8		46		26		45		65
Spain	43	21,530	11	7	8	4	41	42	16	14	48	52	76	82
Sweden	9	35,840	5	3	2	1	40	35	12	10	55	62	86	89
Switzerland	7	49,600	5	5	4	3	39	33	15	12	57	62	81	85
UK	60	33,630	3	2	1	1	41	35	16	10	55	64	82	89
US	294	41,440	4	4	1	1	33	31	14	11	62	65	85	88

Source: World Bank, World Development Indicators 2005

Table 13: International comparison: student staff ratio

Country or territory	student/staff ratio
Turkey (p)	25
Central and Eastern Europe	
Bulgaria (p)	12
Croatia	15
Czech Republic (p)	13
Estonia	10
Hungary (p)	16
Latvia	22
Lithuania	12
Poland (p)	21
Romania	22
Russian Federation (p)	14
Slovakia (p)	13
Slovenia	33
The Former Yugoslav Rep. of Macedonia	17
Ukraine	13
East Asia and the Pacific	
Japan (p)	8
Malaysia (p)	18
New Zealand (p)	14
Republic of Korea (p)	19
Thailand (p)	34
Latin America and the Caribbean	
Argentina (p)	16
Brazil (p)	15
Mexico (p)	10
North America and Western Europe	
Austria (p)	8
Belgium (p)	15
Canada (p)	9
Cyprus	14
Finland (p)	16
France (p)	16
Greece (p)	24
Ireland (p)	14
Italy (p)	22
Netherlands (p)	12
Norway (p)	12
Portugal (p)	11
Spain (p)	13
Sweden (p)	11
Switzerland (p)	7
United Kingdom (p)	20
United States (p)	14
North America and Western Europe	14

Source: UNESCO GED 2006

Table 14: University staff

	1984	1988	1992	1996	2000	2001	2002	2003	2004	2005
TOTAL	21949	28114	37580	52744	66750	70012	74134	77065	79555	82250
PROF	1891	2772	4932	7028	8682	9396	10042	10688	11220	11668
ASSOC PROF	2792	2864	3460	3733	5104	5367	5219	5121	5229	5556
ASST PROF	2503	3469	4089	6783	10189	11190	12356	13266	14219	14871
INSTRUCTOR	4193	4544	5189	7133	9668	10577	11352	11940	12573	12927
LANGUAGE INSTRUCTOR	1457	2368	3128	4274	5344	5435	5580	5443	5800	6076
SPECIALIST	630	861	1230	1960	2191	2158	2175	2158	2231	2373
RESEARCH ASSISTANT	8451	11213	15527	21805	25542	25864	27380	28426	28261	28749
TRANSLATOR	29	12	16	18	19	17	21	12	15	21
ED & TNG PLANNER	3	11	9	10	11	8	9	11	7	9
PRIVATE TOTAL	0	181	641	1346	3721	4601	4900	5646	6780	7776
PROF	0	12	36	108	408	573	615	713	843	962
ASSOC PROF	0	10	20	68	185	245	264	286	299	335
ASST PROF	0	17	72	145	424	593	710	808	1034	1205
INSTRUCTOR	0	28	117	391	1007	1334	1407	1891	2197	2441
LANGUAGE INSTRUCTOR	0	52	225	464	1000	1032	1017	830	1228	1349
SPECIALIST	0	0	4	54	183	201	172	405	282	490
RESEARCH ASSISTANT	0	62	167	115	513	621	714	712	897	992
TRANSLATOR	0	0	0	0	1	2	1	1	0	2
ED & TNG PLANNER	0	0	0	1	0	0	0	0	0	0
PUBLIC TOTAL	21949	27933	36939	51398	63029	65411	69234	71419	72775	74474
PROF	1891	2760	4896	6920	8274	8823	9427	9975	10377	10706
ASSOC PROF	2792	2854	3440	3665	4919	5122	4955	4835	4930	5221
ASST PROF	2503	3452	4017	6638	9765	10597	11646	12458	13185	13666
INSTRUCTOR	4193	4516	5072	6742	8661	9243	9945	10049	10376	10486
LANGUAGE INSTRUCTOR	1457	2316	2903	3810	4344	4403	4563	4613	4572	4727
SPECIALIST	630	861	1226	1906	2008	1957	2003	1753	1949	1883
RESEARCH ASSISTANT	8451	11151	15360	21690	25029	25243	26666	27714	27364	27757
TRANSLATOR	29	12	16	18	18	15	20	11	15	19
ED & TNG PLANNER	3	11	9	9	11	8	9	11	7	9

Source: OSYM higher education statistics

Table 15: Academic salaries relative to other professional salaries

Years	City Governor	Judge	Director General	Colonel	Prof*	% of prof salary as ratio of comparator			
						City Governor	Judge	Director General	Colonel
1997	170	170	120	120	120	71%	71%	100%	100%
1998	300	300	270	270	270	90%	90%	100%	100%
1999	450	430	400	400	400	89%	93%	100%	100%
2000	650	630	510	510	510	78%	81%	100%	100%
2001	1,100	1,050	950	850	680	62%	65%	72%	80%
2002	2,050	1,950	1,700	1,450	1,200	59%	62%	71%	83%
2003	2,354	2,451	-	2,167	1,958	83%	80%	-	90%
2004	2,609	2,746	-	2,428	2,194	84%	80%	-	90%
2005	2,878	2,980	2,829	2,719	2,383	83%	80%	84%	88%
2006	2,947	3,129	2,974	2,854	2,502	85%	80%	84%	88%

* 4 years work experience

Source: YOK draft strategy report

Table 16: Academic salaries

	1979	1983	1990	1995	2000	2001	2006
Prof	100	100	100	100	100	100	100
Associate Prof	84	76	67	76	75	66	66
Assistant Prof	79	52	52	61	64	60	50
Research Assistant	46	42	34	56	48	43	38

Source: YOK draft strategy report (2006)

Table 17: Sources of Revenue in Public Universities (2005 Prices, Billion TL)

Year	Budget Appropriations					Sources of Revenue						Distribution of Revenues by Source		
	Personnel	Other Recurrent	Investment	Transfer	Total	(1)	(2)	(3)	(2+3)	(4)	(5)	Budget	Univ.	Fees
						Budget	Revolving Funds	Other *		Student Fees	Total Revenue			
1993	2,546,455	389,378	814,596	246,363	3,996,793	3,749,800	818,364	97,040	915,404	108,264	4,773,468	78.6%	19.2%	2.3%
1994	2,823,147	483,108	1,177,152	197,244	4,680,652	4,328,137	1,079,225	74,118	1,153,343	166,448	5,647,928	76.6%	20.4%	2.9%
1995	1,952,785	325,464	580,853	85,227	2,944,329	2,816,447	1,036,726	85,293	1,122,019	144,163	4,082,629	69.0%	27.5%	3.5%
1996	1,983,105	311,201	917,306	111,689	3,323,302	3,157,137	1,279,470	108,700	1,388,170	339,625	4,884,933	64.6%	28.4%	7.0%
1997	2,379,237	376,003	1,317,822	150,133	4,223,195	4,012,035	2,487,682	162,641	2,650,323	355,202	7,017,560	57.2%	37.8%	5.1%
1998	2,556,062	346,119	1,335,050	138,375	4,375,607	4,375,607	2,239,942	156,568	2,396,509	345,136	7,117,253	61.5%	33.7%	4.8%
1999	2,765,011	335,907	990,555	162,947	4,254,420	4,254,420	2,331,384	159,284	2,490,667	321,791	7,066,878	60.2%	35.2%	4.6%
2000	2,537,290	309,198	962,583	155,065	3,964,136	3,964,136	2,429,251	198,968	2,628,219	342,121	6,904,405	57.4%	38.1%	5.0%
2001	2,349,986	293,195	978,331	170,361	3,791,873	3,791,873	3,051,569	180,232	3,231,801	314,260	7,315,922	51.8%	44.2%	4.3%
2002	2,476,505	388,506	999,683	130,849	3,995,542	3,995,542	3,268,252	118,535	3,386,787	277,986	7,660,316	52.2%	44.2%	3.6%
2003	2,796,189	345,038	1,003,667	101,878	4,246,772	4,246,772	2,801,803	123,422	2,925,226	311,820	7,483,818	56.7%	39.1%	4.2%
2004	2,654,144	603,785	892,355	99,753	4,250,036	4,250,036	2,884,463	137,587	3,022,051	348,837	7,620,924	55.8%	39.7%	4.6%
2005	2,875,765	660,068	956,038	480,284	4,972,155	4,972,155	2,708,157	193,291	2,901,448	391,134	8,264,737	60.2%	35.1%	4.7%

Source: MOF (see Technical Annex 2 for detailed explanations)

Table 18: International comparison on expenditures on tertiary education

COUNTRY	Total enrolments full and part time all institutions (2003)	Gross completion rates 5A (2003)	Students studying abroad (2003)	Public expenditure per pupil as % of GDP per capita (2003)	Type of exp in public institutions as % of total (2003)				Tertiary educ exp as % of GDP by sources (2003)			% private
					salaries	other current	total current	capital	total	public	private	
Turkey	1,918,483	13	51,744	45	61	22	83	17	...	1.1	0.1	
Argentina	2,101,437	11	9,603	10	88	11	99	1	1.0	0.6	0.4	41%
Chile	567,114	16	6,876	15	62	31	93	7	2.2	0.4	1.8	83%
Czech Republic	287,001	17	6,957	34	47	39	86	14	1.1	0.9	0.2	17%
Hungary	390,453	33	8,305	32	59	26	85	15	1.3	1.1	0.3	22%
Malaysia	725,865	13	41,637	94	23	41	64	36	2.2	2.2	...	
Mexico	2,236,791	14	22,639	46	73	22	95	5	1.3	0.9	0.4	31%
Poland	1,983,360	42	27,110	21	...	...	...	...	1.5	1.0	0.5	31%
Australia	1,005,977	56	7,492	23	56	38	95	5	1.6	0.7	0.8	52%
Japan	3,984,400	36	65,326	20	52	31	82	18	1.3	0.5	0.8	60%
Republic of Korea	3,210,142	33	91,448	9	46	37	83	17	2.6	0.6	2.0	77%
Cyprus	18,272	5	16,967	63	53	22	75	25	1.6	0.7	0.9	55%
France	2,119,149	43	62,195	35	73	16	89	11	1.4	1.1	0.3	19%
Germany	...	20	64,177	...	...	...	...	...	...	...	...	...
Greece	561,468	...	51,209	30	25	42	67	33	...	1.5	...	
Israel	301,326	32	12,254	29	55	36	90	10	...	1.2	0.8	
Italy	1,913,352	31	47,597	24	52	35	87	13	0.9	0.7	0.3	28%
Netherlands	526,767	46	12,789	43	...	...	...	...	1.3	1.0	0.3	21%
Portugal	400,831	...	12,318	28	69	26	95	5	1.1	1.0	0.1	8%
Spain	1,840,607	36	23,157	24	64	16	80	20	1.3	1.0	0.3	23%
United Kingdom	2,287,833	39	31,511	28	...	...	...	...	1.2	0.8	0.3	30%
United States	16,611,711	34	47,982	27	53	37	90	10	2.9	1.3	1.7	57%

Source: UNESCO database accessed July 15, 2006

Table 19: International comparison of per student cost
 In all tertiary education excluding R&D expenditures
 (converted to USD using PPP)

Country	Unit costs
Turkey	3915
Czech Republic	4713
Mexico	4814
Hungary	6051
Poland	3753
Slovak	4206
Australia	8400
Austria	7560
Belgium	8038
Denmark	10883
Finland	6391
France	6949
Germany	6615
Greece	4043
Ireland	7089
Netherlands	7823
Portugal	4547
Spain	5912
Sweden	7418
UK	8813
US	18574

Source: OECD Education at a glance 2005

Table 20: Unit cost by university (2005)

Universities	Year established	Metro. cities	Total	% Graduate Students	% PhD students	Per student total expenditure	Per student recurrent cost	Per student investment cost
ANKARA ÜNİVERSİTESİ	1946	x	9657	22%	7%	5,198	5,108	90
ORTA DOĞU TEKNİK ÜNİVERSİTESİ	1957	x	6090	28%	10%	8,156	7,967	188
HACETTEPE ÜNİVERSİTESİ	1954	x	3823	13%	5%	8,428	8,005	423
GAZİ ÜNİVERSİTESİ	1982	x	10510	14%	3%	2,984	2,780	204
İSTANBUL ÜNİVERSİTESİ	1453	x	8568	14%	4%	5,165	5,161	5
İSTANBUL TEKNİK ÜNİVERSİTESİ	1773	x	6627	32%	8%	6,452	6,147	306
BOĞAZIÇI ÜNİVERSİTESİ	1971	x	2618	23%	6%	5,980	5,861	118
MARMARA ÜNİVERSİTESİ	1883	x	11554	22%	5%	2,535	2,369	166
YILDIZ TEKNİK ÜNİVERSİTESİ	1911	x	2982	14%	3%	3,261	2,895	366
MİMAR SİNAN GÜZEL SANATLAR ÜNİVERSİTESİ	1882	x	849	15%	4%	5,908	4,406	1,502
EGE ÜNİVERSİTESİ	1955	x	3555	9%	4%	4,628	4,411	217
DOKUZ EYLÜL ÜNİVERSİTESİ	1982	x	5967	14%	4%	3,882	3,526	356
TRAKYA ÜNİVERSİTESİ	1982		1274	4%	1%	2,496	2,218	278
ULUDAĞ ÜNİVERSİTESİ	1982		1599	4%	1%	2,955	2,760	195
ANADOLU ÜNİVERSİTESİ	1975		2200	0%	0%	199	196	3
SELÇUK ÜNİVERSİTESİ	1975		7544	10%	2%	1,906	1,725	181
AKDENİZ ÜNİVERSİTESİ	1982		1075	6%	1%	4,624	3,761	863
ERCİYES ÜNİVERSİTESİ	1978		1782	6%	1%	3,278	3,067	210
CUMHURİYET ÜNİVERSİTESİ	1974		1068	4%	1%	2,685	2,506	178
ÇUKUROVA ÜNİVERSİTESİ	1973		3885	12%	2%	4,160	3,915	245
ONDOKUZ MAYIS ÜNİVERSİTESİ	1975		1314	4%	1%	3,382	3,137	245
KARADENİZ TEKNİK ÜNİVERSİTESİ	1955		2236	5%	1%	2,335	2,259	76
ATATÜRK ÜNİVERSİTESİ	1957		4099	10%	3%	3,773	3,569	204
İNÖNÜ ÜNİVERSİTESİ	1975		804	4%	1%	3,887	3,220	666
FIRAT ÜNİVERSİTESİ	1975		1784	9%	3%	4,291	3,719	572
DİCLE ÜNİVERSİTESİ	1974		973	5%	1%	4,315	3,781	534
YÜZÜNCÜ YIL ÜNİVERSİTESİ	1982		1568	10%	1%	4,425	4,349	76
GAZİANTEP ÜNİVERSİTESİ	1987		421	3%	1%	4,391	3,832	559
İZMİR YÜKSEK TEKNOLOJİ ENSTİTÜSÜ	1992	x	592	31%	7%	15,949	10,866	5,083

Universities	Year established	Metro. cities	Total	% Graduate students	% PhD students	Per student total expenditure	Per student cost of education	Per student capital expenditure
GEBZE YÜKSEK TEKNOLOJİ ENSTİTÜSÜ	1992		1323	68%	13%	15,930	11,307	4,623
HARRAN ÜNİVERSİTESİ	1992		414	5%	1%	7,052	5,073	1,979
SÜLEYMAN DEMİREL ÜNİVERSİTESİ	1992		1320	3%	1%	2,279	2,084	195
ADNAN MENDERES ÜNİVERSİTESİ	1992		667	5%	1%	3,780	3,034	746
ZONGULDAK KARAEMLAS ÜNİVERSİTESİ	1992		663	3%	0%	3,060	2,431	628
MERSİN ÜNİVERSİTESİ	1992		956	4%	0%	2,976	2,393	583
PAMUKKALE ÜNİVERSİTESİ	1992		851	4%	0%	3,161	2,535	626
BALIKESİR ÜNİVERSİTESİ	1992		807	3%	0%	1,669	1,265	404
KOCAELİ ÜNİVERSİTESİ	1992		2322	5%	1%	2,543	1,702	841
SAKARYA ÜNİVERSİTESİ	1992		3043	9%	1%	1,813	1,433	380
CELAL BAYAR ÜNİVERSİTESİ	1992		1080	5%	0%	2,510	2,079	431
ABANT İZZET BAYSAL ÜNİVERSİTESİ	1992		1008	5%	0%	2,775	2,369	406
MUSTAFA KEMAL ÜNİVERSİTESİ	1992		357	3%	0%	2,832	2,068	764
AFYON KOCATEPE ÜNİVERSİTESİ	1992		1329	5%	0%	2,191	1,843	349
KAFKAS ÜNİVERSİTESİ	1992		520	4%	1%	2,911	2,054	858
ÇANAKKALE ONSEKİZ MART ÜNİVERSİTESİ	1992		1300	7%	0%	2,239	1,877	362
NİĞDE ÜNİVERSİTESİ	1992		510	3%	0%	2,622	1,797	825
DUMLUPINAR ÜNİVERSİTESİ	1992		1563	6%	0%	1,703	1,396	307
GAZİOSMANPAŞA ÜNİVERSİTESİ	1992		737	7%	0%	3,834	3,252	582
MUĞLA ÜNİVERSİTESİ	1992		691	4%	0%	2,220	1,859	362
KAHRAMANMARAŞ SÜTÇÜ İMAM ÜNİVERSİTESİ	1992		721	5%	0%	3,828	2,774	1,054
KIRIKKALE ÜNİVERSİTESİ	1992		515	4%	1%	3,070	2,572	498
OSMANGAZİ ÜNİVERSİTESİ	1993		1643	11%	2%	5,221	4,710	511
GALATASARAY ÜNİVERSİTESİ	1994	x	748	27%	3%	6,646	5,271	1,375
All Universities (including Open University)			132106	6%	1%	2,272	2,043	230
All Universities (excluding Open University)			132106	10%	2%	3,495	3,135	360
ANADOLU ÜNİVERSİTESİ (excluding open university)			2,200	9%	0%	6,181	6,071	110

Source: MOF (Technical Annex 2)

Table 21: Scenarios

	YOK	Ratio of total	YOK	% increase	Ratio of total	Scenario 1	% increase	Ratio of total	Scenario 2	% increase	Ratio of total
Year	2005		2025			2025			2025		
Age population	5,100,000		5,200,000			5,200,000			5,200,000		
GER excl Open U	25%		57%			45%			45%		
GER incl Open U	39%		65%			51%			53%		
UND/MYO excl OU	1,275,000		2,980,000			2,340,000			2,340,000		
UND/MYO incl OU	1,989,000		3,380,000			2,640,000			2,740,000		
TOTAL Univ excl OU	1,050,000		2,867,000			1,892,565			1,955,015		
Total students	2,290,000	100%	4,197,000	183%	100%	2,992,565	131%	100%	3,155,015	138%	100%
Undergrad	910,000	40%	2,050,000	225%	49%	1,540,000	169%	51%	1,540,000	169%	49%
MYOs	440,000	19%	930,000	211%	22%	800,000	182%	27%	800,000	182%	25%
Postgrads	140,000	6%	630,000	450%	15%	276,285	197%	9%	322,785	231%	10%
PhD production	3,000		17,000			6,935			8,385		
PhD ENROLLMENT	30,000	1%	170,000	567%	4%	69,345	231%	2%	83,845	279%	3%
% PhD in postgrad	21%		27%			25%	117%		26%		
Students overseas	52,000										
Open U	800,000	35%	400,000	50%	10%	300,000	38%	10%	400,000	50%	13%
Staff number	32,000		160,000			105,595			110,095		
Estimated PhD production in 20 years						99,345			113,845		
Student/staff ratio - univ	33		18			20			19		
Private share	7%		16%			15%			25%		
Expenditures											
GDP	4.82E+11		1.28E+12			1.28E+12			1.28E+12		
Government spending as % of GDP	1.1		1.9			1			1		
Private	0.1					0.2			0.4		
Total	1.2					1.2			1.4		
Expenditures	5,784,000,000		24,320,000,000			15,360,000,000			17,920,000,000		
Unit cost excluding OU	3,882		8,483			8,116			9,166		

Table 22 Scenarios in sector composition

	YOK	Scenario 1							Scenario 2						
		No	Staff					Ave	No	staff					Ave
		of	student	Staff	Students	Graduates	PhD	size	of	student	Staff	Students	Graduates	PhD	size
		inst.	ratio					inst.	ratio						
Compotision of universities															
International research universities		5	10	7500	75000	40%	11250	15000	5	10	7500	75000	40%	11250	15000
Research Universities	80	40	15	40000	600000	30%	48000	15000	50	15	50000	750000	30%	60000	15000
Teaching universities		80	25	48000	1200000	3%	0	15000	100	25	40000	1000000	3%	0	10000
Applied research universities		20	20	10095	201,900	15%	10095	10095	30	20	12595	251,900	15%	12595	8396.67
Total		145	20	105595	2076900	276285	69345		185	19	110095	2076900	322785	83845	
MYOs	620	300						2666.67	400						2000