EMPLOYMENT CHANCES OF BME GRADUATES

A survey conducted among BME graduates who received their degrees in 2002

SUMMARY

Compiled by:

Csongor Hajdú
Zoltán Fortuna
Imre Szabó
Gábor Veres

Editor: Gábor Veres

Budapest, 23 September, 2004.

Done by the ***Budapest University of Technology and Economics (BME) - Student Center***

BME Student Center

The present survey forms an integral part of BME quality assurance system which conducts at the Budapest University of Technology and Economics a survey year by year among its freshmens, undergraduate degree recipients and the firms employing them. The purpose of the present survey was to gathering information on our undergraduate degree recipients as a major target group of higher education and to examine their views on general educational outcomes.

Our survey was conducted among BME graduate degree recipients with Hungarian citizenship who received their degrees as full-time students in 2002. This is the specific focus group which constituted the sample frame of our statistical survey. For the sake of achieving a more reliable comparability view, however, made use of external information sources as well (Hungarian Ministry of Education, Public Employment Service, Central Statistical Office).

The received responses reflect the job market experiences gained by young engineeres, mathematicians, engineers-physicians and tecnical managers in the period from their graduation in 2002 to 31December 2003.

The survey questionnaire sent to them has been a bit modified leaving particular questions in certain areas and adding new ones in others. In doing so, we have given more focus on examining, in more detail, how and from what sources undergraduate degree recipients had financed their university studies and, besides, we considered it is important to inquire about whether they could use – and if yes, to what extent – their foreign language skills in different verbal situations during their day-to-day work. When examining the prestige of their chosen speciality or field of study we analysed the relevant ethical and material aspects thereof, separately. In the press and in conducting different surveys relevant to university education, more and more worry and concern is being expressed about unemployment among undergraduate degree recipients, - the comperatively long period that elapses till they can find their first job. So this is the reason why we have included, in our questionnaire, an additional question inquirying about the period spent, after passing their final state examination, with job seaking, and another one inquirying about their mobility on the job market.

Statistical data and representativity of samples

In 2002, a total number of 1532 students received degrees at BME (considering all possible forms of the educational programs offered to them), out of which the number of college degrees was 61, and the number of graduate degree recipients from foreign countries was 82. The total number of degrees awarded in Hungary in 2002 as a certification of qualifications abtainable also at BME was 2593 (out of which the number of college degrees was 694 and the number of university degrees was 1899) so BME's share of such degrees was 57,15 percent (8,79 percent for college degrees and 77,46 percent for university degrees).

It was in 2002 when graduate degrees were awarded at BME, for the first time, to students of mathematics. The total number of students to whom such degrees were awarded at BME was 10 – a figure constituting 17,24 percent as compared to the total percentage of the degrees awarded in Hungary under the same name and in the same year.

The structure of the sample was determined by the so-called statistical weighting procedure to make the sample frame representative as for the faculties concerned and proportions of male and female students. So, by using the said statistical weighting procedure we made the sampling for the survey representative as regards the main variables – percentage breakdown by sex and faculty from which undergraduate degree recipients graduated.

Financing undergraduate studies

As to the sources of financing their university studies, we found that 97,39 percent of the undergraduate degree recipients surveyed were financially supported by their families, 84,68 percent of them were supported by the goverment, 48,03 percent of them had incomes from employment, 7,51 percent of them applied for student loan, and 9,41 percent of them were given other type of financial support. If compared to similar data of former years, we can see that the percentage of goverment support and that of the income from employment have declined throughout the years.

Financing undergraduates studies	**year of graduation**		
	2000	*2001*	*2002*
financial support from family	65	66	67
financial support from government	20	19	19
income from employment	14	13	12
student loan			1
other	1	2	1

Applicability of the knowledge and skills acquired at the university

The number of those who are satisfied („very satisfied" and „mostly satisfied") with the knowledge and skills acquired at the university exceeds 50 percent; so more than half of the graduates are satisfied with their BME education. In an average, the proportion of low opinions (i.e. the responses „little satisfied" and „not at all satisfied") do not reach 6 percent. It was the undergraduate degree recipients from the Faculty of Economic and Social Sciences and from the Faculty of Transport Engineering (especially from the Speciality of Transport Engineering) who were the least satisfied with their programmes of university education – figures equivalent to the ones obtained from last year's survey.

Applicability of the knowledge and skills acquired at the university	**year of graduation**					
	1997	*1998*	*1999*	*2000*	*2001*	*2002*
very useful	25	17	24	23	19	17
mostly useful	22	34	32	27	34	37
partly useful	33	43	40	43	42	35
useful in giving orientation and insight	20	6	4			
of little use				6	5	5
not at all useful	-	-	-	-	-	1
don't know yet	-	-	-	-	-	5

Strengthes of BME educational programmes as seen by students:

Irrespective of the year of surveying and the faculty surveyed, the strong points of the experiences from BME educational programmes were attriBMEd by students (55,65 percent of them) mainly to their having been prepared effectively and exposed to solving practical problems though it is true that this percentage is a bit lower than that experienced in former years. Among the strong points you can also find in a considerably high proportion (16,10 percent of the respondents) the practical applicability of knowledge and skills instructed at the university. This specific percentage is high (47,60 percent), similarly to former years, with graduates from the Faculty of Chemical Engineering (and especially with graduates from the Speciality of Chemical Engineering) – a figure proving posteriorly the usefulness of lab practices.

During surveying the educational experiences of graduates from the Faculty of Economic and Social Sciences, it was observed that the respondents mentioned as an additional strength of their university studies the „financial, legal and comunication skills attained" as was also the case with the similar data obtained from last year's survey – a fact that is closely linked to the peculiar nature of their professional curriculum.

Strengthes of BME educational programmes	**year of graduation**					
	1997	*1998*	*1999*	*2000*	*2001*	*2002*
practical skills	13	8	11	9	8	16
getting prepared to solving professional problems	60	58	60	60	64	55
financial, legal and communication skills	9	9	8	6	10	9
interpersonal skills	-	1	1	0	1	1
problem solving skills	2	4				
theoretical knowledge of chosen career	10	9	-	-	-	-
proper attitude to engineering	3	6				
no response	3	5	-	-	4	-
other	-	-	20	25	13	19

Weaknesses of BME educational programmes as seen by students:

The main weakness of BME educational programes – as shown by the survey – continues to be the lack or insufficient share of professional practices within the whole of university studies (44,48 percent of the students surveyed share this view). The lowest figure, in this respect, was represented by respondents from the Faculty of Architecture (21,07 percent). The second major weakness was constituted by the high volume of comparatively new but unapplicable-in-practice knowledge in the curriculum content (25,70 percent of the respondents mentioned this as a weakness).

As to the further weaknesses identified, they were experienced by respondents it he same percentage as in the former years but there were certain differences by faculties. In case of the Faculty of Architecture, the response „not up-to-date professional knowledge" received ranked even higher than the response „insufficient share of professional practice". Many of the respondents - graduates of the Faculty of Chemical Engineering – mentioned even the lack or poor level of interpersol skills as a weakness.

As to the poor level of foreign language skills, it was especially significant among the graduates of the Faculty of Mechanical Engineering.

Weaknesses of BME educational programmes	**year of graduation**					
	1997	*1998*	*1999*	*2000*	*2001*	*2002*
not up-to-date professional knowledge	12	21	13	12	15	8
scarsity of knowledge that goes beyond professionl material	21	20	19	7	14	6
insufficient share of professional practice	29	33	37	44	37	45
insufficient opportunities to learn foreign languages	14	7	13	9	15	4
lack of interpersonal skills	15	5	11	8	15	6
comperatively high share of knowledge not applicable in practice	[redacted]					26
other	3	4	4	12	2	5
no response	6	10	3	7	2	-

Ethical and material satisfaction offered by the chosen field of study

Nearly one third of the BME graduates feel that their chosen degree area offers satisfaction mainly from ethical point of view. There is a considerable shift of opinion both in the positive direction, in case of the graduates of the Faculty of Electrical Engineering and Informatics (especially those of the Speciality of Electrical Engineering) and in the negative direction, in case of the graduates of the Faculty of Economic and Social Sciences and of the Faculty of Civil Engineering. Out of the respondents, the proportion of those who think that their field of study is not sufficiently rewarded is below 6 percent. In case of the graduates from the Faculty of Chemical Engineering 10 percent of them think that their field of study is not rewarding.

The proportion of those who think that their chosen degree area is positively rewarded materially, constitutes an average of about 40 percent – a figure still more favourable in case of the graduates from the Faculty of Electrical Engineering and the Faculty of Informatics (especially the Speciality of Technical Informatics). Considering the above opinions, the proportion of those who think that their chosen degree area is not properly rewarded materially is much higher than those complaining about the lack of ethical satisfaction, so – to put it into a nutshell - the graduates surveyed consider their field of study more rewarding ethically than materially.

How satisfied are you with your degree area ethically?		**How satisfied are you with your degree area materially?**	
very satisfied	7	3	*very satisfied*
mostly satisfied	59	37	*mostly satisfied*
somewhat satisfied	29	44	*somewhat satisfied*
little satisfied	4	14	*little satisfied*
not at all satisfied	1	2	*not at all satisfied*

Postgradual education and training

As much as 95,58 percent of the graduates said they would like to continue their education in the near future. As it is indicated in the survey, the proportions of those who wish to take part at postgradual education programes is shared equally, in terms of skills, among technical, economic, legal and managerial skills areas, and at the same time, it should be emphasized that the percentage of those who would like to be further trained in other skills is comparatively high (15,3 percent).

Similar to last year's figures, the percentage of Civil Engineering graduates who wish be further trained in professional fields ranks high, and a vast majority of graduates from the Faculty of Economic and Social Sciences focus on managerial economic skills as their postgradual education priorities. As regards the category of „Other skills" it is foreign language skills that was mentioned as dominant by many of the respondents (26,83 percent).

Similar to former years, - a slightly more than half of the BME graduates surveyed would like to acquire new transferable knowledge and skills in the form of mainstream education, preferably postradual training programmes. This endeavour is especially evident among Chemical Engineering graduates (more than two thirds). It is also clear from the survey feedback data that – along with the above postgradual education tendency observed – the proportion of different training courses, on-the-job workshops and self-learning programes as further education options is also on the rise. The proportion of self-study programmes as a further training option is especially high among graduates from the Faculty of Electrical Engineering and that of Informatics – a fact that may be explained with the spreading of technical literature and the devaluation of obsolete professional knowledge. As for the proportion of on-the-job training workshops, it ranks especially high among the respondents from the Faculty of Economic and Social Sciences.

While postgradual training courses aimed at upgrading managerial and economic skills are – as shown by the survey - predominantly delivered in the form of traditional mainstream education, postgradual training courses in professional/technial skills are usually performed as flexible self-study programmes and on-the-job training workshops.

Percentage types of preferred postgradual training	*professional/technical skills*	*managerial and economic skills*	*other skills*
postgradual training programmes	31	73	40
self-study programmes	33	5	22
on-the-job training workshopd	16	13	11
training courses	13	8	15
other	7	1	12

Employment status

Unfortunately, the favourable unemployment figures characteristic of former years could no longer be kept. Unemployment rate among BME graduates surveyed has increased. A clear sign of this is that employers tend to prefer temporary work contracts – a solution giving more flexibility to employers than the more constrained solution of permanent work contracts. It is, perhaps, for similar reasons that the proportion of self-employed respondents has increased by as much as 5 percent. As to the proportions of doctoral students, full-time students, and students falling into the category of „Others" (i.e. students on materity leave, students serving in the Army etc.), they are stagnating.

Considering all of BME students as survey respondents from the different faculties and fields of study, the rate of unemployment is 3 percent this year with respondents from the Faculty of Electrical Engineering and that of Informatics as major producers of the said unemployment figure. In our last year's survey, it was the respondents from the Faculty of Mechanical Engineering and that of Transport Engineering that produced last year's unemployment figure of 1 percent. In 2003, unemployment rate among university degree recipients in Hungary was an average of 1,16 percent (Central Statistical Office) – a figure indicating that unemployment,as a fact of life, has appeared among freshly graduated degree recipients as well.

If we have a closer look at the figures of former years relevant to the employment status of respondents from the Faculty of Architecture, we can see that the proportion of those in employment has dropped by 49 percent while, simultaneously, the number of respondents with temporary work and self-employed status have increased and some of them have even been exposed to unemployment. Because of the comperatively high income level characteristic of the graduates of this specific BME Faculty, the situation here and now does not really seem to be critical; perhaps a rearrangement of possibilities for personal growth may be underway.

Employment status	**year of graduation**					
	1997	*1998*	*1999*	*2000*	*2001*	*2002*
full-time permanent employment	75	77	82	76	79	71
Full-time temporary employment	4	4	4	4	2	5
self-employed	4	3	5	4	3	8
unemployed	-	-	1	1	1	3
doctoral student	16	12	7	11	10	10
full-time student	-	3	-	2	2	1
Other(maternity, army)	1	1	1	2	3	2

Job placement

35 percent of the respodents said that they had found job through relatives – a figure equivalent to that of former years. The proportion of those who could find employment with the assistance of the university (BME) and through job fairs has considerably dropped (by 9 and 5 percent, respectively). At the same time, the proportion of those who could find job through on-line job agencies, HRD counsellors and study contracts has steadily increased (by 5, 1,5 and 3,8 percent, respectively).

With respondents from the Faculty of Architecture, we have to emphasize the importance of relatives in assisting to find employment. More than half of the Civil Engineering graduates tend to find job with the assistance of their relatives. From our survey findings, it seems clear that it was the Faculty of Chemical Engineering, the graduates of which could exploit their contacts established at BME in the most effective way to find employment after graduation. At the other end of the scale in this respect you can find the graduates from the Faculty of Economic and Social Sciences. They, however, as a compensate, were quite successful at job fairs. It is also a significant finding of the survey that graduates from the Faculty of Economic and Social Sciences found job in a consideraly high proportion (11,20 percent) through intensively involving HRD counselling firms as opposed to the other BME departments where this specific method of seeking job was almost non-existant.

Length of time spent with job search

This year, the time spent with searching job has generally been longer than in former years. According to our survey findings, BME graduates were searching job for an average of 2,42 months. Out of the graduates surveyed, only 45,55 percent of them could find job within one or two weeks and the proportion of those who could not find job even 6 months after their graduation was 10 percent. The situation as to finding job is especially worry in case of the graduates from the Faculty of Electrical Engineering and that of Informatics where the proportion of those who could find employment only six months after their graduation was 17 and 13 percent, respectively.

Location of residence and that of workplace, student mobility

Out of graduates' parents the proportion of those with residence in Budapest is 34,24 percent. This compares to 66,93 percent of the graduates themselves with residence in Budapest. It means that the proportion of the students who moved to the capital city as compared to those living in the other three types of settlement is considerably high on each faculty – with the exception of the Faculty of Economic and Social Sciences. This tendency of migration to the capital city seems to be especially growing with students from the Faculty of Electrical Engineering and that of Informatics.

If we look at the statistics relevant to the location of employers employing BME graduates, we can see that the relevant proportions have remained practically unchanged – i.e. the proportion of employers with location in Budapest continues to be nearly 70 percent.

72,19 percent of BME graduates work at their places of residence – a figure equal to that obtained from last year's survey.

As regards commuting to workplaces, it is characteristic mainly of the graduates from the Faculty of Economic and Social Sciences (42,97 percent). Respondents reported an average of 57 minutes spent daily with commuting between residence and workplace.

More than half of the graduates surveyed would be willing to leave their residences if it was demanded or required to do so by their employers or jobs.

Size, form and ownership structure of employers employing BME graduates

Looking at the statistics relevant to employers employing BME graduates, we can see that the proportion of small enterprises (employing a maximum of 20 employees) has increased by 6 percent as opposed to that of former years. This increase in percentage is the same as the percentage of decrease experieced in the proportion of medium and bigger-size enterprises (employing 101 to 500 employees) over the same period of time. It is commonly known that most of the firms engaged in civil engineering and architecture are considerably small in size, so it is not surprising that a vast majority of our graduates from the Faculty of Architecture finds employment with small businesses. It is also worth noting as an important finding of the survey that the number of our graduates working with medium-size firms is also on the rise (the proportion observed this year is higher by 12 percent than that observed last year). It seems also to be a positive outcome that the degree recipients from the Faculty of Transport Engineering and the Faculty of Economic and Social Scieces found job mainly with large companies. The same can be said - even more empatically - of the vast majority of the graduates from the Faculty of Economic and Social Sciences who found employment with multinational companies. As for the graduates from the Department of Transport Engineering, their employers are partly multinationals partly Hungarian companies in state ownership (perhaps widely know transport companies like MÁV, BKV, Volán etc.).

Having examined BME graduates' employers by form, we could see no substantial change as compared to the statistics obtained from former years. The proportion of firms with legal entity (limited liability companies, joint stock companies etc) continue to be predominant. As for the changes observed in this respect, mention should be made of the graduates from the Faculty of Architecture: the proportion of firms with legal entity has dropped by 8 percent while the proportion of firms with no legal entity has increased by 9 percent.

Interestingly, a vast majority of architectural graduates found employment – as mentioned before – with businesses of their own or with businesses in family ownership. Surprisingly enough, however, a high proportion of even civil engineering graduates found job with such types of business – the incease in proportion this year was 20 percent as compared to the figure obtained last year. As we have mentioned before, most of the technical managers start their career with multinational companies. As compared to former years, the proportion of electrical engineers and engineers of informatics as undergraduate degree recipients who found employment with multinational companies has increased by 30 percent.

Reason for changing workplace

63,23 percent of the graduates surveyed reported that their current employment position was their first choice – a proportion 5 percent lower than it was in former years.The proportion of those who worked in their second position has increased but, at the same time, the proportion of those who worked in their third or further position has not really changed.

The possible reason for job change continues to be a higher prospect of earnings. The earnings of those who changed employment position at least once tends to be higher than the earnings of those who continue to work in their first job and the earnings of those who work in their third job is higher than the earings of those who work in their second job. Job turnover seems to be dependant on the variance of earnings available in the given career field and on the vacancies offered.

Relevance of workplace to chosen degree area

73,91 percent of the graduates surveyed indicated that they worked in their chosen degree area – a figure lower than that obtained in former years.The proportion of those who did not work or only partly worked in their chosen degree area has increased.

The responses given to the question of how their graduate training related to their current job and their level of job satisfaction were highly dependant on whether they had worked in their chosen degree area or not – a proof of the consistency of responses.

As opposed to 49-56 percent of former years, the proportion of those who worked in positions relevant to designing and development has dropped to 42,23 percent.

Out of male graduates the proportion of those working in managerial positions is 15 percent while in case of female graduates the proportion is only 5,5 percent. Managerial positions are usually held by BME graduates either at companies employing more than 500 employees or at very small firms with no legal entity employing a maximum of 20 employees.

Prospects for promotion

To be able to survey their prospects for promotion, we added a separate question to the questuionaire items. 44,71 percent of the graduates surveyed said they would have an opportunity for promotion in one or two years. In this respect, we found a big discrepancy (8 per cent) between male and female graduates.

Satisfaction with job

The proportion obtained is, by and large, the same as that obtained last year. 75 percent of the BME graduates surveyed said they were satisfied with their job, while 25 percent indicated they were not.

Supplementary occupation

The proportion of those having supplementary occupation has slightly dropped. 16,32 percent of the graduates surveyed reported having supplementary occupation as opposed to last year's figure of 19 percent. The proportion of those having supplementary occupation is especially high (35,31 percent) with the graduates from the Faculty of Architecture - a fact that may be attriBMEd to the peculiar nature of their work and to their work schedule requirements.

Foreign language skills

At the time of survey, the ratio of passed foreing language exams (basic, intermediate and advaced) per graduate was 1,59. Quite interestinly, the size of the said ratio among BME enrollees in 2002 was 0,97. A vast majority of the graduates surveyed have English language skills: 89,89 percent of the graduates have speaking competence. 51,84 percent of the graduates surveyed have German language skills. As to other language skills, they do not reach a total of 10 percent. 32,48 percent of the graduates surveyed reported speaking two different foreign languages beside their mother tongue while 4,55 percent reported speaking at least three different foreign languages.

Levels of earnings

In surveying the gradates' levels of earnings, we have considered only the following employment categories: full-time permanent employment, full-time temporary employment, self-employed status. We have inquired in the questionnaire about their gross earnings in the year of 2002, their monthly gross earings in February 2004 and the other benefits they received in cash or kind. The figures obtained are show in the table below. The average of other benefits received in cash or kind are indicated in the said table only if the recipient completed a relevant official declaration thereof and if the total in this declaration was not equal to zero.

		Faculties								
		Faculty of Civil Eng.	*Faculty of Architecture*	*Faculty of Mech. Eng.*	*Faculty of Economic and Social Sciences*	*Faculty of Transport Eng.*	*Faculty of Nat. Sciences*	*Faculty of Chem. Eng.*	*Faculty of Electrical Eng. and that of Informatics*	*Total*
Earnings in February 2004	*Average*	**188.476**	**182.835**	**196.356**	**252.026**	**273.585**	**no data**	**239.521**	**282.283**	**235.267**
	Standard deviation	**62.850**	**93.839**	**76.011**	**105.971**	**184.650**	**no data**	**132.771**	**159.868**	**134.884**
Average monthly gross earnings in 2003	*Average*	**177.407**	**153.605**	**192.669**	**244.589**	**263.595**	**no data**	**203.896**	**260.515**	**218.807**
	Standard deviation	**49.406**	**72.601**	**77.220**	**109.051**	**166.669**	**no data**	**90.775**	**145.712**	**121.031**
Monthly other benefits in 2003	*Average*	**40.073**	**44.736**	**42.496**	**16.216**	**48.804**	**3500**	**25.199**	**32.065**	**35.772**
	Standard deviation	**53.684**	**53.490**	**48.312**	**11.901**	**75.824**	**0**	**25.649**	**48.981**	**50.951**
Average monthly income	*Average*	**197.076**	**191.554**	**193.632**	**258.675**	**274.692**	**no data**	**205.576**	**272.968**	**232.211**
	Standard deviation	**80.243**	**89.855**	**110.541**	**119.262**	**196.618**	**no data**	**96.632**	**162.182**	**138.685**

Income levels (in HUF) of BME graduates per department

After the dynamic increase in our graduates' earnings in former years, unfortunately we experience **a decline in nominal salary** this year. In 2002 the average monthly income of those graduated in 2001 was HUF 246.000, while in 2003 the average monthly income of those graduated in 2002 was only HUF 232.211. This figure – considering the official inflation rate of 4,7 percent (by Central Office of Statistics) – represents a decrease of HUF 20.000 in real earnings. However itshould be pointed out that inspite of the fact that the current income status of white-collar workers in Hungary as a whole (average monthly gross income is HUF 193.274 by Central Office of Statistics), our BME graduates still seem to be in a comperatively favourable income status.

If we compare the average monthly income of males with that of females, we can say that females earn on an average, only 80 percent of that of their male counterparts, and besides, even the standard deviation of incomes for females is only 40 percent of that of their male counterparts' - a fact leading to the conclusion that the income level of females in every case seems likely to be much lower than that of their male counterparts.

It is not only the standard deviation and the average monthly income that can give valuable information but also **the distribution of incomes.** 11,13 percent of the graduates surveyed earn less than HUF 100.000 – a proportion unfortunately 3 percent lower than it was last year. The dominant income range for BME graduates seems to be between HUF 150.000 and 250.000 but in some cases (2,67 pecent) there are incomes even higher than HUF 500.000. There is a very mixed picture even by the distribution of incomes per degree areas: while a quarter of architectural engineers fall into the lowest income category, no one of the transport engineers and tecnical managers fall into this income category.

We have also examined the **relationship between the relevance of employment position to chosen degree area and the incomes earned**. According to our own experiences, the highest the relevance of your employment position is to your chosen degree area the more you earn. The discrepancies observed tend to be quite significant. Those whose current position is only partly related to their chosen degree area earn only 80 percent of the income earned by those whose current position is fully related to their chosen degree area, and those whose current position is not related to their chosen degree area earn only 75 percent of those whose current position is partly related to their chosen degree area.

As was expected, the income level of those in managerial positions is higher than that earned in non-managerial positions. BME graduates in managerial positions earn on an average of 66.000 HUF more than their counterparts in non-managerial positions. On the other hand, the standard

deviation of their incomes is about one and a half higher than that of their counterparts employed in non-managerial positions.

The income level of those having supplementary occupation makes only 73 percent of those who have no supplementary occupation – a fact leading us to the conclusion that those whose income level is comperatively low are more likely to seek supplementary occupation than those with higher income level.

Those who are contented with their job tend to earn a bit more (by about HUF 10.000 more) than those who are not. A similar tendency can be observed as to the responses given by graduates to the question inquirying about the relationship between their promotion prospects and their income prospects: those with higher promotion prospects tend to earn a bit more, in general.