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AN OPEN PANEL ON HIGHER EDUCATION: ORGANIZATIONAL CRISIS AND THE BRAIN DRAIN

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ASSAF RAZIN

Centers of excellence at Israel's universities are crumbling. The brain drain is in full flow. The country's extensive investment in higher education over the last five decades is increasingly benefiting other countries which are able to attract Israeli academics.[1]

Figure 1 illustrates the situation in Israel in the units most vulnerable to the brain drain—the universities. Departure for employment abroad of males aged 30–40 is the highest among professors, 6.52 percent. Relative to its size, the brain drain from universities in Israel is more widespread than it is in most other highly scientifically advanced countries. As Figure 1 shows, Israelis account for 1,409 of the foreign staff at US universities while Britons account for only 3,117, even though Britain's population is ten times greater than Israel's. Figure 2 presents rates of departure from Israel by profession. It demonstrates that university professors have the highest exit rates.

The brain drain from Israel shows not only in the numbers of Israelis who pursue their academic careers abroad. It is reflected also in a significant decline in the quality of the research output in recent years. A standard way of measuring the quality of research output in the academic world is the average number of academic citations per scholar. Accordingly, Table 1 describes the trend away from excellence in the last few years in economics departments in Israel. The chart shows that if we exclude the number of citations received by veteran professors, who contributed to a department's reputation before they retired, the number of references obtained by the various departments of economics falls steeply due to the absence of a new generation of staff members at an equivalent research level.

The brain drain is the result of a combination of factors: growing wage differentials between Israeli universities on the one hand and American and European ones on the other, the lack of scientific equipment in experimental science, the bureaucratic system of appointments and promotions, and shortage of funds. Among the main reasons for the inability to stem the growing tide of academics leaving the country are economic factors, the academic governance structure of higher education in Israel, the non-merit-based government mechanism whereby funds are allocated to the various universities, and low tuition fees.

[1] Curiously, the academic brain drain stands in a sharp contrast to the steady expansion of the hi-tech sector in Israel, in the last two decades.

The crisis is reminiscent of the multiple equilibrium stories for an economy with positive externalities. If there is a critical mass of a young group of academics with intensive interactions among them, each individual has an incentive to join the group to benefit from the interaction with the others in the group. If there is no critical mass, an individual has no incentive to join an existing group, in which the level of interaction between scholars is low. It seems that the equilibrium with the first type somewhat characterizes the golden age of academics in economics, with a relatively small brain drain. Globalization of higher education shifted the equilibrium to one of the second type. But an institutional reform may return the equilibrium back to the one with limited brain drain, especially in view of the fact that Israel is now much richer than it was a few decades ago. However, an institutional reform is hard to implement.

Commenting on the role of incentives in higher education Mas-Colelell (2003) put it this way: "The delivery of the services of the universities, teaching and research is resistant to mechanization. Consequently, universities are labor intensive organizations. In addition, the labor is highly qualified and embodies considerable amounts of human capital. The human capital, often, is not very specific, so that it has attractive outside options. Altogether, it is a context where productivity is bound to be heavily influenced by incentive schemes." The role of institutional reform is precisely to provide proper incentive schemes!

Wage bargaining is done between two bodies, neither of which properly internalizes academic considerations. Professors' pay is determined jointly by an Academic Staff Committee (a workers' union to all intents and purposes) and the Ministry of Finance. Pay is uniform across all the disciplines, and Committee of Heads of Universities (a union of the administration of all the research universities) and the Higher Education Authority's Planning and Budgeting Committee (a government body that allocates funds across universities) serve only as an intermediary in the wage bargaining, with very little influence on the outcome of the wage negotiations. Such a way of determining academic salaries does not leave much leeway for providing incentives for outstanding scholars, or competitive salaries in disciplines where there is a large excess demand (such as economics), which would have helped to stem the massive brain drain. In other disciplines, where there is a large excess supply (such as history) young academics are unable to obtain positions, because of the lack of academic slots and aged faculty. In both cases, but for different reasons, young, talented, academics stay abroad.

Aghion et al. (2007) reports some interesting findings on the relationship between some set of proxies for governance and research performance, as measured by the Shanghai Ranking of universities. First, the results indicate that it is important to correct for other determining factors besides governance. Size, age and budget per student positively affect research performance. But once these factors are controlled for, the governance indicator that turns out to be significant is budget autonomy.

Tuition fees are set in a complicated process. On one side of the tuition negotiation table there is the National Union of Israeli Students, an organization which is more interested in the student standard of living than in academic standards. The student union certainly has no interest in quality of academic research. On the other side of the negotiating table there is the Ministry of Finance, which has little interest in the academic aspects of high or low tuition fees. The university administration and the Planning and Budgeting Committee, the other interested parties, are completely sidelined.

A tried and tested way of altering the downward trend is to adopt the model of the American state universities, such as Berkeley. The first principle is that the government plays a limited role in allocating funds, meaning that tuition fees and donations are an important part of funding, especially with regard to teaching at the university. The second principle is to improve incentives with regard to the internal allocation of budgets between the academic units, and differential pay for academic staff according to excellence, thereby creating more suitable compensation.

It is appropriate at this point to raise once again the idea of the Threshold Fund (Sapir Center, 1981), which first appeared in the *Economic Quarterly* twenty-five years ago. The idea was to set up a fund that provides loans for students which will be repaid once they have completed their studies, the size of the repayments being based in part on the wage of the borrowers. A fund of this kind could serve as a means of helping students to pay realistic tuition fees.

In principle, the teaching units in the university can be divided into three groups. The first is characterized by 'excess demand' (e.g., economics). Excess demand is driven by a typical increase in future earning which overwhelms the low teaching costs and income forgone while at the university. In this case there is no economic or social reason not to increase tuition fees. The second group is characterized by an 'excess supply' (e.g., history). The student's future earning power does not increase as much as a result of his or her studies; and teaching costs are low. In this case there is no economic or social reason not to leave tuition fees at their current, relatively low level. The third group is characterized by high teaching costs (e.g., the experimental sciences). In this case tuition fees can be raised from their current level to an intermediate one. A differential scale of tuition fees of this kind, together with a loan arrangement such as that proposed by the Threshold Fund (Berglas, Kesse, Helpman, Razin, Sadka, and Sheshinsky (1981)), would not only be viewed more favorably by the political system, but would be both socially and economically desirable.

The experience with social credits in the form of an income-contingent loan system of the type used by Australia suggests that this system need not jeopardize accessibility of higher education (See Jacobs and van der Ploeg, 2006). It is typically accompanied by university-controlled tuition subsidies to needy students.

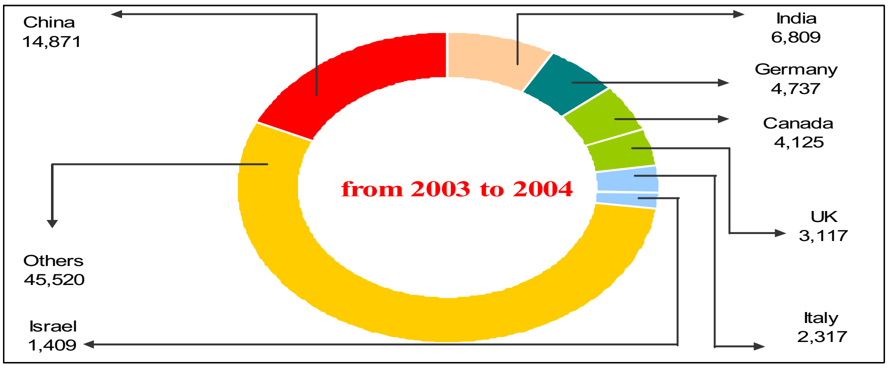
However, there are many impediments to change in Israel. Political parties compete for students' votes and court the general public during a general election. This political structure makes it impossible to increase tuition fees. Independent administration by academic faculties, together with a strong academic unions, prevent the introduction of a more efficient system of incentives which could attract the young scientists who are able to obtain attractive academic posts abroad.

The European system of higher education is not unlike that of Israel. In a somewhat fragmented European higher education and research area, universities are hampered by excessive public control, bad governance and insufficient funding opportunities (see Van der Ploeg and Veugelers, 2008).

Changes have to be made within the universities, too. It is necessary to restrict the ability of the Academic Staff Committee to prevent the introduction of merit-based differential pay among the various staff members by means of strikes and lock-outs, as was the case in the early 1990s, after the publication of the conclusions of the Tsur Committee, which advocated differential pay. In Germany, for example, because the law prohibits the existence of a union of academic staff, it has been possible to increase wage differentials in recent years.

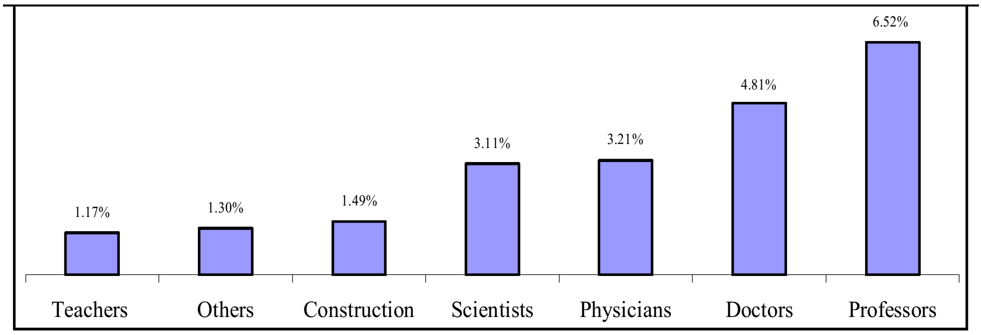
In the absence of private research universities, any institutional reform in higher education immediately assumes national proportions. The reform of higher education has low priority among politicians. They cannot withstand the pressures of the Students' Union to cut tuition fees, and pressures from the academic staff unions to prevent the introduction of academically merit-based differentials in salaries. It seems to me therefore that it is unlikely that the brain drain will decline. Consequently, Israel's academic institutions are likely to continue to deteriorate.

Figure 1
Foreign Academic Staff in the US



SOURCE: OECD in Figures.

Figure 2
Rate of Departures from Israel
Men aged 30 – 40, by profession, 1995 – 2002



SOURCE: Gold and Moav.

Table 1
Ranking of Departments, by Total References per Department* (February 2007)

Rank		No. of staff members		References	
	Whole country**	146	(176)	39,774	(60,024)
1	Economics, T.A.	20	(27)	17,724	(26,956)
2	Economics, H.U.	23	(39)	7,772	(17,228)
3	Economics, Bar-Ilan	29		3,822	
4	Administration, T.A.	7		3,163	
5	Economics, Haifa	21		2,257	
6	Economics, B.G.	26	(29)	2,242	(2,649)
7	Public Admin., T.A.	3		1,663	
8	Agric. Econ., Faculty	13	(18)	1,039	(2,221)

* Numbers in parentheses include emeritus staff members.
** Only departments with at least three economists.
SOURCE: Dan Ben-David (2007), "Ranking of Academic and Other Economists in Israel" (Hebrew).

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YORAM WEISS

My remarks will focus on one topic only, tuition fees. In October 2000 I gave evidence before the Winograd Commission and raised several criticisms which I would like to reiterate here.

My first point was that to some extent higher education in Israel has benefited from a windfall and is on a disproportionately high level, given the country's economic resources. This was the result of the immigration of Jewish intellectuals who were forced to flee from Europe in the 1920s and 1930s. When I addressed the commission in 2000 it could still be contended that Israel's higher education system was very good in relation to those of many other countries. On the other hand, however, and this is the main point I made and one which I would like to repeat here, it is very easy to destroy this system. Canceling tuition fees while permitting free access to the universities is an almost certain prescription for that, as has in fact occurred elsewhere. I say this not as some kind of logical or necessary outcome but rather as an empirical contention based on my observation of several cases.

At a later stage I will give some other examples, some of them mutually contradictory, but at that opportunity I mentioned France. In 1987 I taught for one month at the Sorbonne in Paris, in a relatively new building in Rue Tolbiac. When I arrived at the building for the first lecture I could not believe my eyes. Vandalism, graffiti, noise, overturned chairs, and pictures of Yassir Arafat on the walls. I could not find any connection between that spectacle and France's long and glorious cultural tradition, with its tremendous contribution to philosophy and science. I found out later that what I had seen was quite customary at the universities there. The system in France is based explicitly on free access, without tuition fees. There is a sprinkling of first-class universities which are highly selective and take about 10 percent of the students; they have the best professors who are employed at research institutes and devote only a fraction of their time to lecturing. However, large numbers of students clamor to gain entry to the other universities and are accepted without any selection process. Fifty percent of those drop out while the rest suffer from overcrowded and noisy classes and a low level of teaching.

I also said then that the tuition fees, which were $3,000 at that time, were not particularly high, and I simply proposed at that meeting that the situation should be left as it was. It did not seem to be a very radical proposal, but Justice Winograd expressed his surprise at it, took out his letter of appointment, and said, "You may not have noticed, but this commission is charged with *reducing* tuition fees." As everyone knows, the commission did indeed recommend reducing tuition fees, as it had been asked to do. Meanwhile several years have passed and some of the countries mentioned in the discussion held at that time as examples of countries without tuition fees, such as Germany and the Netherlands, have gradually introduced tuition fees in one form or another. Amazingly, we, too, are talking about raising the tuition fees once more.

In Israel today there are about 240,000 students at the various institutions of higher education, about half of them are at university. The average expenditure per student by a university is $12,000, about 2 percent of total expenditure. This amount is similar to that spent in other countries, and is even slightly higher than in some of the OECD countries, but it is lower than in the US, where it is $20,000. One of the questions that has to be asked is, what does the student contribute to the cost of teaching him/her? In this context most attention is focused only on tuition fees, but in actual fact that is not the only or even the main item of expenditure, because students bear part of the costs by forgoing income while they are studying, and this can amount to a considerable amount. If we take the average wage today, which is NIS 7,600 a month, and assume that students lose half their earning power while they are studying, it can be assessed that the student himself sacrifices $1,200 a year. Thus, total annual expenditure averages $23,000, and the student bears half of this, regardless of the tuition fee. If we add the tuition fee of $3,000, we find that on average the individual student bears 60 percent of the expenditure involved in his/her education.

An additional perspective regarding the level of tuition fees in Israel is obtained by comparing them with those in other countries. Permit me to say first that in several countries, especially the UK and the US, higher education has become an export good, so that a distinction is made between the tuition fees paid by domestic students and those paid by students from overseas. The figures that are most relevant for us are the tuition fees paid by domestic students, but the tuition fees paid by overseas students also provide information about the expense involved in supplying higher education and its value as perceived by foreign students.

An outstanding example of a country with a policy of high tuition fees is the UK, where fees have risen appreciably in recent years and currently stand at $6,000 for domestic students and $20,000 for foreigners. In the US there is greater variance in tuition fees than in the UK, but if we focus on the public institutions we obtain similar averages: about $5,000–$6,000 for domestic students in state schools, and $16,000 for students from outside the state or from abroad. Several countries which had abolished tuition fees have recently introduced a more moderate scale of fees. In Germany tuition fees were raised after a protracted political struggle and now stand at $1,300. The Netherlands switched to this track at an earlier stage, with fewer struggles, and tuition fees there are now $1,800. Note that in both the UK and the US there are various loan programs in which repayment is contingent on future income. Thus, alongside the high tuition fees, extensive aid is provided for students in need. Most of the countries with high tuition fees have a system of loans for financing living costs.

There are still countries without tuition fees. I have already mentioned France, which has a system of that kind and all kinds of problems, but there are also countries which have no tuition fees and yet the system functions. In Denmark not only are there no tuition fees but the students are also given a reasonable grant for living costs. All the Scandinavian countries have similar systems.

After reviewing the various possibilities, and bearing in mind the fact that the student bears a considerable part of the costs of his/her education, the question that arises is whether the share of the cost of university education which is borne by the students in Israel is commensurate with the benefits they are destined to reap in the future, and whether this investment should be subsidized. It is difficult to find a good reason to subsidize students of such subjects as economics, law, computers, or accountancy, as in the final event they earn a good wage in return for their investment. The investment is not inconsiderable, but the reward is substantial, and has even increased in the last few years. According to statistical estimations, the average individual increases his/her wage by between 8 and 10 percent throughout their working life for every year of education. Furthermore, the chances of finding work and not being unemployed are also greater.

It may perhaps be claimed that the acquisition of education makes a greater contribution to society than it does to the individual, and hence this investment should be subsidized. This should be done not because we wish to bring people into the system in order to support them directly, but in order to support others. This idea is often raised in connection with investing in human capital, and can be relevant for lower levels of education. Obviously, learning to read and write or engaging in educational activities which reduce crime could affect society as a whole, and in this case has positive externalities. It is far more difficult to identify the externalities at the level of higher education, and the relevant examples usually come from the spheres of science and technology. In most professional spheres there is no direct reason for subsidization because the individual himself has sufficient incentive to make the investment.

There is another important consideration for determining a low tuition fee, and that involves the accessibility of higher education. It is reasonable to assume that because of credit constraints, talented but impecunious individuals are unable to acquire higher education even if it is worthwhile for them. If we examine the learning rates in Israel for the 20 – 29 age-group we find that 7 percent of individuals whose families originally came from north African countries are in higher education while 13 percent of those whose families originate from Europe or the US or are native-born Israelis are in higher education. A deeper study shows that in fact this gap begins at the high school level, which may be the source of the problem, but in any event it would seem that there is a problem regarding the accessibility of higher education in Israel. It might be possible to reduce this problem by means of loans, as is the case in countries where tuition fees are high. Note, however, that the credit schemes which have so far been put in place in Israel are utilized only in part.

Assuming that the credit problem is solved, what role is in fact played by tuition fees? The main task of tuition fees is to allocate a university's meager resources to those individuals who can benefit most from the investment in education. This is expressed primarily in the variety of persons seeking higher education as well as in the ability of universities to compete for good students by providing scholarships. When tuition fees are high students can have a greater effect on the quality of the service by choosing among the universities; this will constitute an incentive to the institutions to develop those disciplines which are preferred by the students, and even to improve their quality.

In principle, it is possible to achieve the same objectives also by administrative methods and central planning. But experience has shown that systems of this kind run into difficulties and generally do not attain the desired results. Just as the regulation of rents reduces the stock and quality of housing units as well as having an adverse effect on the underprivileged population, a policy of low tuition fees combined with free university entry could reduce the quantity and quality of the academic staff while causing the level of teaching and research in Israel's higher education system to deteriorate.

I think it is important to describe clearly and in a few words the expected process of destruction, because I believe that this is a very real danger. It does not have to happen, but it has happened elsewhere and is in the process of happening here. It goes as follows: large numbers of students enter the system and the government does not have the budget to provide the physical conditions that are needed for teaching. Lecture halls are large and overcrowded, there are few teaching aids, and the lecturers are paid a low wage. The government decides who will attend university and what an institution's financial resources will be on an arbitrary basis, without giving sufficient consideration to the suitability of the teachers, the students, and the subjects studied. Unsuitable and unmotivated students enter the system. There is a large proportion of failures, repeat exams, and a high drop-out rate. Exhausted lecturers fail to show up for classes and find work outside the universities. The universities have no incentive or ability to adapt to the students' various demands or alter the material studied. Lecturers are unable to undertake research. The students gain very little from their studies and alternative frameworks spring up, such as private colleges with high tuition fees and high salaries for teachers. The underprivileged segment of the population is trapped in the collapsing public system of higher education while the wealthier segment is served by the flourishing private system. Is that what we want? Are those the conditions in which equality will increase?

OMER MOAV

In honor of this meeting I have prepared an 'empirical study' of the brain drain among economists. I undertook a very simple exercise: taking cohorts, I examined the number of Israelis who have gained a Ph.D. in economics and are currently in a leading economics department, especially one of the 30 foremost departments in the US, the two foremost in the UK, and the two foremost in Israel (Jerusalem and Tel Aviv). The findings are given in the following table:

Year of Ph.D.	Leading departments in Israel	Leading departments abroad
1960-1969	17	4
1970-1979	14	10
1980-1989	13	10
1990-1999	8	9
2000-2006	6	17

As can be seen from the table, 17 of the Israelis who gained their Ph.D. in economics in the 1960s and are now in one of these 34 departments are in Israel, and only 4 are abroad. 14 of the Israelis who gained their Ph.D. in the 1970s are in Israel—a slight decline from the cohort of the previous decade. There is almost no change when it comes to the cohort of the 1980s; 13 of them are in Israel and 10 are abroad. With regard to the cohort of those who gained their Ph.D. in the 1990s, however, there is a significant change: only 8 have remained in Israel while the number abroad has remained relatively stable at 9. The cohort of Israelis who gained their Ph.D. in the 2000s is gloomy: 6 of them are in Israel and 17 are abroad.

Those are the figures. Of course, they can be interpreted in various ways, but there is no question that the departments of economics in Jerusalem and Tel Aviv are crying out for able young scholars, who in many cases prefer to remain abroad for the moment.

Naturally, these data, which relate solely to the field of economics, may not be indicative of what is happening in other fields, but we know that other subjects, such as business administration and even certain areas of medicine, suffer from a similar problem. Outstanding scholars leave the country and it is difficult to find young people who have gained first-class degrees and have not been offered attractive employment in the US. In addition, from the study of emigration from Israel that I undertook together with Eric Gold it is clear that the problem goes beyond the disciplines of economics and business administration.

We have recently witnessed a discussion in the press in the wake of a series of articles by Merav Arlozorov in 'Ha'aretz' about the achievements of the universities in Israel. I have no doubt that there is a lot of truth in the articles by members of the academic staff which appeared in response and stressed the excellence of Israeli scholars. But alongside that excellence there is also a great deal of mediocrity and, worse still, there are incentives for mediocrity. So there is room for reform and the appointment of the Shohat Commission is to be welcomed, even if, as experience teaches us, not all public commissions reach reasonable conclusions, and in many if not most cases in the final event their recommendations are not implemented.

In the existing system, as Manuel Trachtenberg pointed out, there is a problem of administrative inflexibility, as a result of which university presidents do not have the tools for rewarding and encouraging excellence. While flexibility is necessary, it is not sufficient. Given the existing structure of the Israeli education system, the universities have no economic incentive to aspire to excellence, and in any case there is no mechanism for assessing the quality of research, so that stories about excellence constitute a substitute for any genuine information about achievements.

The budgeting model of the Planning and Budgeting Committee—the implementing body of the Council for Higher Education—rewards the mobilization of research budgets and the preparation of doctoral candidates, and this affects the universities' policy regarding incentives and salaries. A scholar who obtains research budgets gains a wage increment, and the preparation of doctoral candidates means that he has met one 'criterion' for a higher salary.

On the other hand, genuine research success, expressed in the publication of first-rate studies in the international research arena, does not significantly increase a university's budget; less than 7 percent of the budget is a function of research output, and this is primarily based on the quantity of publications, rather than their quality. So it comes as no surprise to find that success in publishing first-rate research does not give a scholar any direct reward, and at the most it may help him or her to gain promotion, which in many cases is based on the quantity rather than the quality of their publications. Moreover, it is obvious that the incentive of promotion is not relevant for many staff members—those who have already gained professorial status.

Naturally, there is a correlation between the raising funds and achievements. The question is, how strong is this correlation and what kind of incentives does the system create? How much importance is attached by the president of a university, who is inevitably much concerned with the budget of the institution he directs, to the publication of articles in leading journals, compared with mobilizing research grants and producing doctoral candidates (irrespective of their quality)?

At a meeting of one of the sub-committees of the Shohat Commission one of the witnesses related that as the person responsible for research budgets he had managed to encourage academic staff members who had been engaged in research for many years without trying to obtain research budgets and without benefiting from any reward from their research budgets to submit proposals to research funds. And what was to be done with the money? Employ doctoral candidates (who were apparently superfluous). So what was it good for? Public money is being wasted—unnecessary research budgets are being mobilized—in order to increase the university's budget (naturally, at the expense of other institutions in that budgetary framework).

Are the doctoral candidates good or bad? I have no doubt that some of them are excellent, but at the same time, since there is also a very strong economic interest among doctoral candidates, the lecturers, and the university for them to gain their Ph.D.; some of those who gain their degree are not up to scratch. Are most of them first rate? As long as the Higher Education Authority does not do its job as regards quality control (e.g., by examining the journals in which the studies undertaken by research students are published) we will not know.

As long as there is no control of the quality of the research undertaken by members of the academic staff and doctoral candidates, there is not much point in having a mechanism of administrative flexibility and incentives. After all, research is not a product that may be sold in the market, and there is no way of measuring success by price, sales, or profits. Hence it is essential to have a mechanism of quality control, and this does not yet exist. The claim that quality control exists in the form of the peer review of articles in journals does not hold water. Although many journals do review articles their level is mediocre if not low.

I would like to stress that I am not saying that there is no excellence or self-motivation that is not connected with economic incentives, but there are also aspects of the higher education system which need to be addressed, and I see nothing wrong in the appointment of a commission that reflects the aspiration to improve the system.

I will refer in brief to the proposals made by the Coordinating Committee of the Senior University Staff Organization, to replace the recommendations of the Shohat Commission (which had not yet been published at that stage) regarding the remuneration of academic staff. Permit me to deal first of all with the proposal to increase the wage increment for obtaining research budgets. As was noted earlier, the mechanism as it stands today creates problematic incentives. A scholar with excellent achievements who receives an attractive offer to work abroad will be paid a low wage if all that is required for his work is a pencil and paper. A mediocre scholar, on the other hand, will be paid a high wage if he needs an electron microscope. In my view this is a ridiculous if not corrupt approach. Moreover, at least in an area like economics, no scholar will come back to Israel because of this wage increment, which depends on the whims of the people who make the decisions on an annual basis.

Second, the Senior University Staff Organization recommended expanding employment possibilities outside the university. One of the economic incentives for excellence is the option of working outside the institution. An outstanding scholar in a prestigious field can obtain a high wage abroad during his sabbatical or unpaid leave. But if scholars, and especially outstanding ones, spend long periods away from their university departments, that does not exactly help to build a first-rate department.

In line with this idea, according to the proposal of the Senior University Staff Organization, it is a good idea to enable additional flexibility also with regard to work outside the university in Israel, especially in 'institutions which make a public contribution.' What is the message that is being sent to the brilliant Israeli economist in the US who is considering returning to Israel? Accept low pay at the university but we will let you waste your time moonlighting so that you can make a living. I hope that whoever thought this up was joking, and that the proposal was not meant to be taken seriously. Another section in the proposal hints that the document may indeed have been written with tongue in cheek. It suggests that the title of professor be taken away from scholars who decide to leave the universities and move to the private sector. In other words, anyone who does moonlighting instead of engaging in research without giving up his or her university post can still be called professor in the private sector. But anyone who gives up their university post will be punished. And the punishment, according to the authors of the document, will encourage scholars to remain in the system (and produce first-rate research…).

In conclusion, I would like to stress the difference between the quality control of research by means of a designated control mechanism and by examining research proposals. Naturally, any quality control mechanism establishes a criterion of quality, and there can be no absolute criterion, and even if it exists we will never know what it is. However, among the various methods some are better and some are worse. For example, in the British model, the Research Assessment Exercise, by contrast with the quality assessment used by the Israel Science Foundation, research output is examined every seven years, not every year. Inevitably, it is difficult to recruit a committee of internationally recognized experts on an annual basis. Once in seven years it is feasible. In addition, for the purpose of research budgets a research proposal is examined, and weight—significant weight if one is lucky—is given to research achievements, but mostly to the proposal itself. In addition, the process lacks transparency. Are articles counted? Is any importance attached to their quality? In the UK each scholar submits four publications from the last seven years to the committee. The rest are simply not taken into consideration. Why? Because the idea is to place the emphasis on quality, not quantity. The object is to encourage people to do their best, not simply to produce articles. Placing the emphasis on quality not only creates the right incentives for existing scholars, it can also attract into the system the scholars who are capable of producing first-rate research.

EFRAIM SADKA

I would like to address the topic of university funding from a public finance point of view.. What do we do at the university? It is customary—and apparently also correct—to assume that what we do is to teach and undertake research. It may be impossible to completely dissociate these two activities from one another, but this is generally done. Research is usually of the basic kind. To use economic jargon, it is a public good; it is a good that everyone can have. This contrasts with a private good, such as the bottle of water standing on the table beside me which, if I drink it, my colleagues on the platform cannot have. That is the nature of a private good. On the other hand, a public good serves or is consumed by everyone. If someone proves a mathematical theorem, everyone can use it, and this will not be at the expense of someone else. Pythagoras' theorem, for example, was proved several thousand years ago; we all use it; but this has not prevented anyone else from using it. A public good embodies market failure. Only a government can finance it. In other words, from the outset our point of departure is that a large part of the university's budget must be financed by the public, possibly even the international public, because the basic research that is undertaken there serves the entire world, and hence a country like the US must finance more than other countries.

Teaching, however, which is what the students actually receive, is a private good. It is true that it is impossible to completely dissociate research from teaching, but what the students, at least the undergraduates, receive is primarily teaching. So the question is, to what extent should they finance it?

We have a rule of thumb that says about half of a university's budget is devoted to teaching and half to research. Tuition fees today cover about 20 percent of the budget. If we go according to that rule of thumb, in order to get to half we have to increase tuition fees by 150 percent to NIS 25,000 a year. That, it seems, is not practicable. Although Manuel said that we are not discussing only tuition fees but also the system of aid for students, I don't think that the intention is to reach such high tuition fees.

But let's talk about something more practical. For example, increasing tuition fees by 50 percent. Together with the repayment of the money that the government cut from the budget, that adds about NIS 2.25 billion to the universities' budgets, an increase of some 35 percent; and that is very significant. And it is not something impossible. Now, why did I say that a far higher increase in tuition fees is not practicable? Because we also have to look at what we economists call 'the elasticity of demand.' There is elasticity of demand relative to price. It would be implausible to assume that if tuition fees were NIS 25,000 a year there would still be the same number of students at university, and their distribution across departments would be the same as it is today. We might have the same number of students, but they would not be distributed among the various departments in the same way as they are at the moment. How many people would be prepared to pay tuition fees of NIS 25,000 in order to attend the various departments in the humanities, or even in the exact or life sciences?

So we have a problem here regarding how far it is possible to increase tuition fees without switching to a framework of differential fees according to subject studied (or, more precisely, profession).

On the other hand, I'm prepared to put myself for a moment in the shoes of the students, who oppose the increase in tuition fees, and to try and explain matters, to see if there is any logic to their claim. The claim made by Assaf and others, namely, that it is impossible to justify the subsidization of tuition fees by equity considerations, would seem to be right. In other words, it would be difficult to argue that it is a good that is consumed primarily by the underprivileged and hence is a necessity or a basic good, whose subsidization is justified. That would be quite wrong. On the contrary, it is a luxury good, the income elasticity of which is greater than 1,,so that it should be taxed, not subsidized. But a student could also come and say, quite rightly, that we should examine the composition of the student body. No thorough research has been done on this subject, but I assume that I would not be wrong in saying that the proportion of students who have done military service is higher than it is in the general population, and possibly even significantly higher. This is an argument that cannot be dismissed out of hand.

At a time when the entire population did military service, no-one received anything in return for it, and rightly so. But today that is no longer the case. And if this is so, that means that not everyone does military service, so let us not amend only one injustice. This means that it is true that it is not necessarily needy students whose tuition fees are subsidized, but can we simply cancel or reduce the subsidization? Let's take matters one step further. What we have to do is look at things from a different angle, and consider what would happen if we paid some kind of wage to persons doing compulsory military service; I think that's what should be done, and it is a pity that it wasn't done earlier.

So let's assume that we pay soldiers doing compulsory military service something in the vicinity of the minimum wage, not more. Naturally, it is difficult to find precise figures because the information is not exactly public. According to my rough estimate, we are talking about an increment to the budget of about NIS 2 billion a year. That is a lot fairer than subsidizing tuition fees. Because not only students, not only those who attend university, receive it. Students who attend colleges get it too. Some people may prefer to travel abroad, that is their right. Others may want to set up their own business or buy an apartment, they are entitled to do those things. We don't have to decide for them. We simply cut the subsidization of university tuition fees, pay for mandatory military service and let everyone decide what they want to do.

Now, to address the aspect of economics departments. The fact of the matter is that from the outset the subject of this discussion referred solely to the academic economic aspect. I, too, came prepared to talk about the economic side of things. If I try for a moment to look solely at the economic aspect, at the departments of economics, and perhaps also at allied departments such as finance, accountancy, etc., there is no doubt that in the last few years there has been a tremendous deterioration. We do not need the data presented by Omer in order to see this. Each one of us only needs to look around him, it is after all a small country, the personal sample is sometimes also the general or random one, there is no great difference between the two.

What characterizes us today - I will define in economic terms as pooling equilibrium, which means that everyone is in the same boat. The alternative, of there being asymmetry between different entities, is separating equilibrium, or equilibrium at which there is a difference between the different entities (subjects) and they are treated differently.

I will address the field of economics separately. Let's take some data from the School of Economics at Tel Aviv University. It has 700 full-time equivalent undergraduate students; this means that if a student simultaneously studies accountancy or computer sciences he is considered only a half-time student of economics. In order to keep things simple, I'll round the budget figures.

Tuition fees are about NIS 10,000. Thus, we're talking about an income of some NIS 7 million from tuition fees (under the current budgetary method this income does not necessarily reach the School of Economics, but this is the income which could reach it).

If we think in terms of doubling tuition fees, as is done in the colleges, that brings it to NIS 14 million. The School's budget is about NIS 13.5 million. Nowadays, the budget is calculated correctly. It includes almost everything, other than unfunded pension payments. If we assess the actuarial value of the unfunded pension payments at 20 percent of wages, as is customary with funded pensions, we get a budget of NIS 15 million, as an all-inclusive budget.

Again, assume that a B.A. program involves only teaching. In that case the cost of teaching at the School would be half the total budget, namely, NIS 7.5 million, in comparison with an annual income of NIS 14 million if we were to double tuition fees. Look what a difference there could be between income and expenditure, what a high level of teaching and research could be attained. That is what the off-budget colleges (which are not funded by the government) are able to achieve. In this way they beat the universities in certain fields.

So in those years when the economic or education planner, who held all the strings, said—no colleges, there won't be any colleges, we won't permit any colleges to be opened—equilibrium, which was pooling equilibrium, held good. But as soon as the planner permitted colleges to be established, that unnatural equilibrium spelled the doom of the departments of economics and allied subjects in the universities.

In fact, what we are talking about here is a kind of differentiation by subject. I know that there is a great deal of disagreement and dissension about this. So let's set this possibility aside and talk about differentiation by achievements. I think that there is no much disagreement about this kind of differentiation.

Omer has already talked about this. How do we define achievements? Here, too, there are problems when it comes to uniformity. Today, when you submit a research proposal (incidentally, very few research proposals come from the economics and allied departments), you have to meet criteria and answer questions that are suited primarily to the natural sciences. For example, you are asked how many patents will ensue from the research, and whether you have sufficient equipment for it, and whether it meets the Helsinki rules regarding animals, etc.—questions that are completely unnecessary. The cost (mainly in time) of submitting a research proposal is daunting. Consequently, very few people submit research proposals in the field of economics. What are you required to describe in the research proposal? What you will do in a study which will begin to be undertaken at best in another year at the earliest. You generally do not know what you will be working on in another year, and in the research proposal you are required to give a detailed account of what you will be investigating in the year after that. It is completely superfluous.

We have a far better method: for example, the criteria could be improved by being based on past achievements. That seems a much more logical approach. You are judged on the basis of what you did last year. What could go wrong? This year you would receive a grant on the basis of your achievements last year, but then you would sit back and twiddle your thumbs for a year. In that case, you wouldn't receive anything next year. So what would be so bad in rewarding the actual achievements of the previous year? It would make it possible to save high administrative costs for the entities providing the research grants, for researchers who have to write research proposals, and for all those academics who have to read their colleagues' research proposals afterwards. And in any case all the above is unnecessary with regard to economics as well as to many other disciplines.

In conclusion, I would like to say a few words of warning about implementing reforms. We're talking about the need to reform the higher education system, and I agree that this is needed. The main problem in introducing reforms, and this is sometimes the stumbling block, is the approach—or rather lack of it—to the transition. In the US a brilliant and well-known economist, Martin Feldstein, suggested that Social Security be privatized. He said, let's move from the pay-as-you-go system, in which young people pay a contribution which is used to pay the pensions of the elderly, to what we call a fully funded pension system. In other words, all young people will put money into a pension fund that invests the money in the capital markets, and when they reach pensionable age they will get their money back, plus a handsome return, in the form of a pension. What a wonderful return we will get for our money! What a terrific pension we will have! (The proposal was made at a time when the US capital market was performing very well.)

The proposal was turned down. Why? Because someone said, hang on a moment, what about the transition? When you shift from the pay-as-you-go to the fully funded system, young people will stop paying in contributions to finance the pensions of old people. So what will happen to those old people? Who will finance their pensions? They won't get anything. Then, when they calculated the real cost of the reform, taking into account the fact that all of a sudden the government would have to finance the pensions of all the old people, it transpired that the reform would be very expensive, and hence not quite so attractive after all.

So I say the same thing about the reform of the higher education system. We must remember what the system is. As it stands today, there neither is nor was differential pay, whether by discipline or by achievement, and *it is a system in which the basic wage and (non-contributory) pension have been greatly eroded in recent years.*

Now, any reform which ignores the transition period and does not come up with a plan of action for it is liable to come up against a great deal of opposition—and justified opposition, at that. It could leave the older generation of active, emeritus professors behind, as was the case with the old age pensioners in Feldstein's proposed reform. In other words, that generation is liable to be asked—without any justification—to bear the cost of the reform.

Some of those present were members of the Shohat Commission, whether on the main committee or one of the sub-committees. Please, don't just talk about the final picture, about how the universities will look in another 20 or 30 years. It is incumbent upon you to also address the subject of the transition, so that the fate of the active, emeritus professors will not be that of the old-age pensioners in Feldstein's proposal. When they were taken into consideration, it suddenly transpired that the reform would be very expensive. Please take into account the fact that the reform of the higher education system could be quite expensive, more expensive than was initially thought, if you don't ignore the transition, and if you do—there will be no economic or moral basis for the proposed reform.