

Brain Drained

Part 1: Soaring Minds

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This is the first of a two part series of articles providing a comparative examination of how universities in two countries, the United States and Israel, have evolved over the past few decades – and how differences between the two have culminated in a rate of academic brain drain from the latter to the former that is unparalleled in the western world.

This article concentrates on the extent of academic migration to the States while the next article (coming out tomorrow) focuses on how different higher education policies in the United States and in Israel led to the academic migration.

These two articles are based on a couple of recent CEPR paper by the author.

The brain drain issue has begun to manifest itself in increasingly broader spheres that go far beyond the traditional out-migration from developing to developed countries. As borders become more open to individuals with skills that are in demand, a greater number of those who can move choose to do so. This is becoming progressively clearer in the academic profession.

In its examination of the brain drain to the U.S., the European Commission (2003) reports that 73% of the 15,000 Europeans who studied for their PhD in the States between 1991 and 2000 plan to remain in America. If Europeans are concerned about the migration of their academics to the States, then Israelis should be nothing less than alarmed.

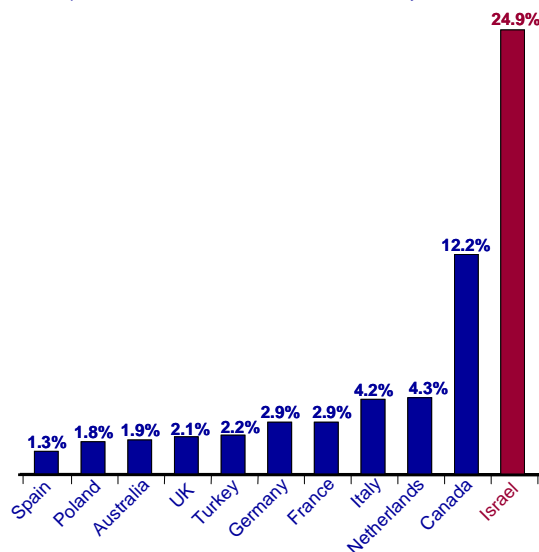
In general, the ratio of foreign scholars in America to scholars in the home country ranged from 1.3% in Spain to 4.3% in the Netherlands (Figure 1). Canada was an outlier. The ratio of Canadian scholars in the States to those in Canada was 12.2%, though this is much more of a two-way street than in any of the other cases.

While Canada is an outlier, Israeli scholars in America are in a class by themselves. The Israeli academics residing in the States in 2003-2004 represented 24.9% of the entire senior staff in Israel's academic institutions that year – twice the Canadian ratio and over 5 times the ratio in the other developed countries.

An examination of five fields in which Israeli academia is considered to hold world-class scholars – physics, chemistry, computer science, economics and philosophy – is suggestive. In two of these fields, economics and chemistry, Israelis received 3 Nobel Prizes in recent years. Academic citations between 1997 and 2007 place Israeli universities among the top 150 in the world in all 4 of the 5 fields measured by the ISI Web of Knowledge (there is no ISI ranking for philosophy).

Figure 1
Foreign Scholars in U.S. Universities

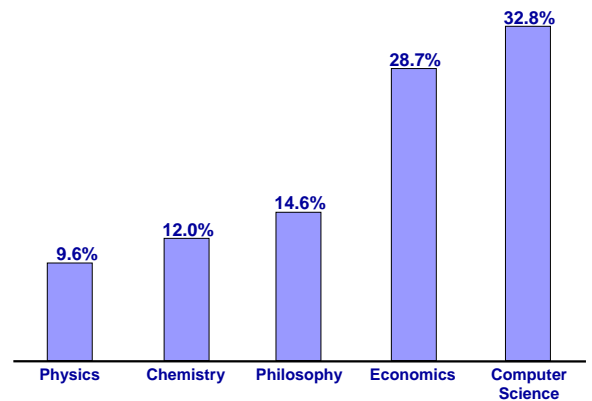
as percent of academic scholars in home country, 2003-4



Among the tenured and tenure-track faculty members in the top 40 American departments (ranked by the American National Academy of Sciences) in each of the five fields are a fairly large number of Israelis. The number of Israeli physicists in just the top 40 American departments is one-tenth the entire number of physicists in Israeli research universities (Figure 2) – more than double the *overall* migration rate of the Netherlands, the European country with the greatest rate of academic emigration to the States. The share of top Israeli chemists in America accounts for one-eighth the entire discipline in Israel. The number of Israeli philosophers in top American departments accounts for 15% of the philosophers remaining in Israel.

Though the emigration rate by top-end researchers in physics, chemistry and philosophy is very high, that rate is doubled by the economists. The number of top Israeli economists in the States is 29% of those still remaining in Israeli departments of economics. The group with the greatest proportional representation in the top American departments is computer science. The number of Israelis in just the top 40 U.S. computer science departments represents a full third of the entire contingent remaining in Israel. Some of the leading American departments have no less than 5-6 Israelis each.

Figure 2
Israelis in top American departments, 2007*
 as percent senior faculty in Israel, by field



Migration of Academic Economists

A more focused look at one of the five groups – that of economists – provides a glimpse of how the emigration within this field has impacted the discipline in Israel. By the 1970s, Israel had become one of the most productive countries doing economic research in the European area.

A comparison of 600 universities and research centers in 18 European countries including Israel by Combes and Linnemer (2002) for the years 1971-2000 provides an indication of this impact. Table 1 compares the 18 countries, putting the numbers into per author terms. Using the United Kingdom as a base, it is possible to see that the drop-off from the U.K., in terms of published pages per faculty member, is fairly steep in the other countries. Israel is the exception. Between 1971 and 2000, Israeli researchers published two and a half times as many pages per researcher as the U.K. economists. When the comparison is made in the blue ribbon journals only, the ratio of published pages is nearly seven to one.

By the end of the nineties however, the first signs of problems began to appear on the horizon. In addition to their comparison of the decades between 1971 and 2000, Combes and Linnemer (2002) also compare the European countries during the sub-period of 1996-2000. Israeli economists were still ranked number one during this period in terms of per researcher output, but the gap between them and the other European countries declined considerably. For example, they produced “just” 55% more

Table 1
Ranking of European Countries
in Academic Economics, 1971-2000

average number of quality-weighted published pages per faculty member (UK = 100)

	All Economics Journals		8 Blue Ribbon Journals Only	
1	Israel	251.5	Israel	691.7
2	United Kingdom	100.0	United Kingdom	100.0
3	Belgium	71.1	France	78.0
4	France	60.4	Ireland	72.5
5	Norway	59.7	Belgium	55.0
6	Netherlands	51.7	Switzerland	48.6
7	Ireland	51.5	Sweden	42.2
8	Germany	47.0	Germany	38.5
9	Switzerland	45.3	Turkey	38.5
10	Greece	43.7	Austria	33.0
11	Austria	37.9	Netherlands	31.2
12	Sweden	33.6	Italy	23.9
13	Italy	32.8	Norway	21.1
14	Denmark	31.7	Spain	21.1
15	Turkey	20.5	Denmark	20.2
16	Spain	20.0	Finland	19.3
17	Finland	15.8	Greece	9.2
18	Portugal	10.6	Portugal	1.8

published pages overall than the U.K. economists and “only” four times as many pages in the top journals. While this reduction in the gap is probably due to improvements in the output of the U.K. economists (as well as those in the other European countries with whom the publication gaps declined), this drop in the publication gap also contains the seeds of a process that has only accelerated in Israel since 2000.

Coupé (2003) uses academic citations on articles published in the years 1990-2000 to rank the 1000+ most cited economists in the world. The location of the Israelis on his list during the nineties and their location today provides an indication of both stocks and flows between countries at the top end of the profession.

Of the 13 leading economists in Israeli universities during the 1990s, 3 of those under retirement age are now employed full-time outside of Israeli academia – two in leading American universities and one in Israel’s private sector. While roughly a quarter of these top 13 have since left Israeli academia, none of the dozen top-ranked Israeli economists in the States during this period has since returned to Israel. In fact, some of them actually made the move to the States during the nineties and have remained there since – among them a few with quite a number of years left until retirement.

What has transpired in the Tel-Aviv University economics department provides an indication of the situation’s severity. The number of faculty in the department, which had been ranked (on the basis of citations per capita) in 14th place internationally – and was in sole possession of first place among all departments outside the United States, between 1990 and 2000 – fell from roughly 25 in the mid-nineties to 18 in 2007, of whom only eight were full-time and did not hold additional positions elsewhere. The top two departments of economics, at Tel-Aviv and Hebrew Universities, have reached the point where there are so few faculty members in each, that the graduate programs in the two departments will be united from the 2008-09 academic year, a situation not seen in Israeli academia since its inception.

Why Do They Leave?

While security and taxes undoubtedly play a role in the emigration of some of Israel’s academics, the situation in both areas is actually better today than it was a few decades ago. Though terrorism has been on the rise, it has been decades since all-out wars were waged that threatened the very existence of the country. And while Israel’s tax burden is not very evenly distributed, it is no higher than the OECD average – and it has been coming down in recent years.

As reported by many of the Israelis who left as well as by those in Israel who tried to recruit them, the primary reasons for the current academic brain drain would appear to lie elsewhere, in the realm of the country’s higher education policy. And herein lie a number of lessons for those who do not want to follow in Israel’s footsteps.

The second part of this two part series (which will appear tomorrow) highlights how academia in the United States and in Israel evolved over the past several decades and how policy differences between the two culminated in a rate of academic brain drain from the latter to the former that is unparalleled in the western world.

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