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August Gächter

Brain Drain from Bulgaria. The Evidence and Policy Options

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ZSI-Zentrum für Soziale Innovation
Linke Wienzeile 246, A-1150 Wien
Tel.: +43 1 495 04 42
Fax: +43 1 495 04 42 DW: -40
e-mail: institut@zsi.at
http://www.zsi.at
Bankverbindung: Bank Austria
BLZ 12000, Kto.-Nr. 684 137 409

Brain Drain from Bulgaria.
The Evidence and Policy Options[1]

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[1] Expanded and slightly revised version of a chapter to be published in: Piyasiri Wickramasekara (ed.), Skilled Labour Migration: Analysis of Impact and Policy Issues

Introduction and summary of findings

In 1990, Bulgaria's balance of live births and deaths turned negative and has remained so since. This important demographic event went almost unnoticed due to a second demographic event. Between 1988 and 1993 emigration starkly exceeded immigration, and Bulgaria's population was reduced by an estimated 474,000, or more than 5 per cent. The annual loss during these six years was 79,000, far in excess of the 6,700 of the preceding 28 years (1960 to 1987) or the 600 of the next six years (1994 to 1999) (Gächter 2002). While this looks like an impressive loss of population, its longer-term significance does not necessarily rival the turning of the demographic balance. It would appear to depend heavily on the composition of the net population losses. Were these highly educated people? Did they have scarce and essential skills or knowledge that are hard to replace? Was there a reasonable expectation they would be productive above average, or that they would in other ways contribute disproportionately to national well-being? Obviously, the answers to some of these questions would be speculative at best, but for others there is a degree of empirical foundation and these will be pursued in this chapter. Another point is important to bear in mind. Emigration had been restricted for about 50 years. The burst of emigration around 1990 made up for this in part. When the uncertainty of the political transition ceased and the Bulgarian state found its bearings again, emigration was reduced to a trickle. Over the entire period from 1960 to 1999, net emigration per year was a meagre 16,500. This is clearly not an impressive figure for a nation of eight million. A renewed net emigration was observed in 2000 and 2001 in response to stronger demand from abroad.

The findings in this report clearly indicate an exodus from the lower academic rungs of the technical sciences only, and that only a small fraction thereof was due to emigration. MA holders and PhD holders of all fields of science can be shown to have remained in Bulgaria, and the share of workers with completed tertiary education has been on the increase. In addition, like other countries in transition from communism, Bulgaria has been experiencing an influx of highly skilled personnel, both, from countries farther east and farther west.

Overall, the data make it impossible to evade the conclusion that to call Bulgarian emigration a "brain drain" would be a considerable exaggeration. There has been a trickle of highly qualified emigrants, no more, and even cumulatively it is not big enough to make any difference at all, especially given that there is also return migration and an immigration of skilled foreign personnel. Bulgaria may not quite have been having a net immigration of skills but the net emigration has been very small and the supply of personnel with a tertiary educational degree has remained exceptionally large.

1. An abundant supply of skills

1.1 The supply of educational skills

Today, there seems to be no dearth of highly qualified workers in Bulgaria. According to World Bank (2004) data, in 2001, 23.3% of the labour force of 4.1 million had completed tertiary education, up from 17.6% in 1992. Not only their share had risen over the period 1992 to 2001 but also their number, from 763,500 to 951,000. Indeed, by 2001, the labour force with tertiary education exceeded that with only primary education. The lowest number, 748,300, was estimated for 1993. Likewise, the mainstay of the Bulgarian labour force, workers with secondary education, kept rising in numbers after 1993 until 1997 but was slightly lower again in 2001. Reductions were observed only among workers with no more than primary education, not because of emigration but because of retirement and succession by more educated workers. Thus, there would appear to be little reason for alarm over a loss of educated or skilled manpower.

If the 23.3% of workers with tertiary education are put in an international context, Bulgaria's position appears still more favourable. In 2001, no country in the area had nearly as high a percentage of highly educated workers. At 20% Greece came closest, but Greece's GDP per capita at purchasing power parity is 2.6 times Bulgaria's. In Hungary, Slovenia and Croatia the share was about 17%, in Poland about 13%, in the Czech Republic and Slovakia between 11% and 12%. In Romania it was only 9%. In Austria, with more than four times Bulgaria's GDP per capita at purchasing power parity, it was below 15%, while in Germany it was only half a percentage point greater than in Bulgaria. In Belgium, also four times as rich as Bulgaria, and included here for being of similar population size, almost 32% of the labour force were deemed to have completed tertiary education (World Bank 2004). Correlating GDP per capita at purchasing power parity with the tertiary share of labour force for all these countries except Bulgaria yields a significant correlation coefficient of 0.69. Among the middle income countries in the area, Bulgaria is clearly the odd one out hovering way above the regression line. In other words, Bulgaria, in 2001, clearly continued to harbour a much larger share of tertiary educated labour force than any of the countries in the area, especially if the level of GDP is taken into account.

Labour force and employment data by educational attainment are also provided by NSI for a date as close to the year end as possible. This was done since 1994, but from 2001 some qualifications were regrouped between secondary and tertiary level. As of 2001, therefore, the series starts over.

Employment rose from 2.87 million at the end of October 1994 to 3.09 million two years later, then decreased to 2.63 million at the end of 2001 and rose to 2.70 million at the end of 2002. Employees with tertiary education numbered 0.61 million in October 1994 which was about 21 percent of total employment. Until the end of 2000, their

number rose to 0.64 million which was then 23.6 percent of total employment. After the break in the series tertiary level employment stood at 0.71 million both at the end of 2001 and 2002, this being 26 percent to 27 percent of employment.

Table 1: Employment by educational level

	Thousands			Percent distribution		
	Primary	Secondary	Tertiary	Primary	Secondary	Tertiary
Oct 1994	762.1	1,496.2	610.5	26.6	52.2	21.3
Oct 1995	789.8	1,596.6	645.1	26.1	52.7	21.3
Oct 1996	773.2	1,672.0	640.2	25.1	54.2	20.7
Nov 1997	742.6	1,636.1	651.3	24.5	54.0	21.5
Nov 1998	632.8	1,637.7	650.2	21.7	56.1	22.3
Nov 1999	557.4	1,610.9	642.8	19.8	57.3	22.9
Dec 2000	501.1	1,588.1	646.4	18.3	58.1	23.6
Dec 2001	451.2	1,467.1	709.9	17.2	55.8	27.0
Dec 2002	455.0	1,538.9	710.6	16.8	56.9	26.3

Source: NSI (various years)

Throughout the period the secondary school graduates provided more than 50 percent of employment while the share of employees with merely primary education declined continuously, at first from 26.6% in 1994 to 24.5% in 1997, then more rapidly to about 17% in 2001 and 2002.

According to the table below rates of unemployment have been edging up since 1995. This does not seem to be an effect only of the ever more winterly month represented in the table.

Unemployment rates were lowest at the tertiary level of education. In December 2002 they were the same as in October 1994: 8.3 percent both times. The 1995 rate was only 5.2 percent. Even in 1999 it was only 6.7 percent. The rise from the lowest point to 2002 was 2.9 percentage points.

By contrast, the labour force with secondary education had gone from 18.7 percent in 1994 to 13.0 percent in 1995 and to 15.9 in 2002. Again the rise was 2.9 percentage points over a period of seven years, roughly 0.4 percentage points per year.

The labour force with primary education experienced unemployment rates of 31 per cent in 1994 and 21.1 percent in 1996, their lowest level. They then rose to 29.4 percent at the end of 2002. Here the swings were clearly much larger than at higher education, i.e. more than eight percentage points between 1996 and 2002.

Table 2: Unemployment rates by educational attainment in Bulgaria during the last quarter of the year, percent of the labour force

	Primary	Secondary			Tertiary			Total
		Total	Vocational	General	Total	Specialist	Academic	
Oct 1994	31.0	18.7	20.7	15.8	8.3	8.8	8.1	20.5
Oct 1995	23.9	13.0	14.2	11.2	5.2	5.1	5.2	14.7
Oct 1996	21.1	12.9	13.8	11.6	5.3	6.1	5.0	13.7
Nov 1997	22.8	14.2	15.3	12.6	6.4	7.3	6.1	15.0
Nov 1998	26.4	14.7	15.7	13.3	6.8	7.0	6.7	16.0
Nov 1999	29.0	15.8			6.7	6.0	7.0	17.0
Dec 2000	28.9	15.2			6.9	7.9	6.3	16.4
Dec 2001	32.6	19.1	18.9	19.8	9.1	8.9	9.2	19.5
Dec 2002	29.4	15.9	16.0	15.6	8.3	8.9	8.1	16.8

Source: NSI (various years).

1.2 The supply of occupational skills

Bulgaria enjoys a fairly large number of physicians among its working age population. In 2001, the number of physicians was about 4,958 per million working age people, one sixth more than in 1985, and 6 per cent less than the 1996 peak of 5,263 (World Bank 2004). In the area only Greece has a considerably larger number of physicians per million working age population, about 6,350. A number of countries were in the same league with Bulgaria. In Slovakia the number stood at 5,179, a 5 percent decline from 1985, and the Czech Republic, Germany and Austria stood at around 4,800 physicians per million working age population. Elsewhere in the region numbers are considerably lower ranging from about to 4,200 in Hungary to as little as 2,000 in Turkey. Set in relation to GDP per capita at purchasing power parity Bulgaria's number of physicians is still more impressive. Bulgaria ranges about 1,400 physicians above the regression line (from the calculation of which Bulgaria was excluded), a value only exceeded by Greece and approached by Slovakia. (Slovenia stood nearly that much below the regression line.)

In 1990, there were more than 9,000 scientists and engineers in research and development (R&D) per million people of working age in Bulgaria (World Bank 2003). By 1994, this number was down to only 2,200, less than a quarter the original level. While this decline is staggering, the outcome is less than impressive. By 1994, Bulgaria had reached about the level of other countries in the area, in particular that of Poland, Austria, Romania, and the Czech Republic, who were all to be found between about 1,900 and 2,400. Hungary had a level of about 1,700. Croatia, Slovakia and Slovenia were doing better ranging between 2,900 and 3,500.

Two years later, Bulgaria had recovered to a level of about 2,600 before it declined to 1,900 by 1999. Greece employed only 1,100 to 1,200 scientists and engineers in R&D per million people of working age in 1993 but raised the number to 2,000 by 1999, and Macedonia and Turkey remained at less than 500, although their GDP per capita PPP was almost the same as Bulgaria's. The correlation between a country's wealth in scientists and engineers in R&D, in 1999, was related to its GDP per capita at purchasing power parity, the correlation coefficient being r=0.90 (including Bulgaria). Bulgaria was placed about 700 above the regression line, more than one third of its supply. Of the countries under consideration here this was by far the most favourable position relative to GDP. Indeed, it should be taken as a sign of potential problems in employing all the scientists and engineers in R&D productively.

The number of technicians in research and development (R&D) was more than halved in Bulgaria between 1996 and 2000, from 1,454 to 691 per million working age population (World Bank 2004). There seems to be a fairly clear relationship in the region between a country's wealth and the number of technicians engaged in R&D. The correlation coefficient on the regression line in the chart below is 0.90. Bulgaria was included in this regression, since it is quite obviously part of the trend and not an outlier as in previous instances. As with scientists and engineers, it appears the reduction only served to bring the number of technicians to a more realistic and sustainable level more or less in line with other countries in the area.

Likewise, regressing the number of patent applications of residents per technician in R&D on the number of technicians in R&D per population shows Bulgaria in about 2000 to be part of the crowd. Bulgaria's low output per technician of only 0.54 patent applications seems to reflect its relatively low GDP per capita but the correlation coefficient between the two variables is only 0.62 and would be reduced to next to zero, if Germany's exceptional 55 patent applications per technician were included. If the output of patent applications per technician is related to the number of technicians per population, the seven lower income countries in the area for which there are data exhibit a striking pattern. The greater the number of technicians the lower the output per technician (r=-0.69). Bulgaria fits the pattern almost perfectly. When it had nearly 1,500 technicians per million working age people in 1996 the output of patent applications was only 0.33. In subsequent years, when the supply of technicians was below 900 at first, and then below 700, patent applications oscillated around 0.6 per technician.

Table 3: Indicators of skill supply in central and south-eastern Europe and GDP per capita, 2001

	GDP per capita PPP constant 1995 int'l $	Share of labour force with completed tertiary education	Physicians per million working age population	Technicians in R&D per million working age population	Patent applications per technician in R&D (1998-2000)
Bosnia and Herzegovina			4,958	691	
Bulgaria	6,037	23.3	2,059		0.54
Croatia	8,651	17.2	3,448	499	0.77
Czech Republic	13,462	11.6	4,837	1,019	0.84
Greece	15,951	20.1	6,350	803	0.13
Hungary	11,530	16.5	4,235	743	1.73
Macedonia, FYR			3,241	43	2.23
Moldova			4,050		
Poland	9,195	12.9	3,190		
Romania	5,523	9.1	2,753		
Slovak Republic	10,855	11.5	5,203		
Slovenia	15,776	16.6	3,131	1,253	0.34
Turkey			1,979		
Austria	25,892	14.9	4,784	1,465	3.09
Belgium	24,421	31.9		1,751	1.54
Germany	24,085	23.8	4,838	1,967	55.17

Source: World Bank 2004. Author's calculations.

This review of a few broad skill categories for which there are data indicates that Bulgaria, in around 2000, was not suffering from a dearth of highly trained personnel. Some further evidence pointing in the same direction will be forthcoming in the next section.

1.3 Academic employment

Bobeva (1993) thought that any emigration from Bulgaria after 1992 was due less to the attractions of the West than to the difficulties of transition at home. In particular, she noted the low wages, poor employment chances and poor working conditions of scientists and researchers. Very similar sentiments were voiced in Croatia (Golub 1998). Employment in the Bulgarian science sector plummeted from 86,310 at the beginning of 1990 to 46,880 at the end of 1992, Bobeva wrote, and added that, in her opinion, emigration must have played a significant part in this reduction. She did not append any evidence to support the notion.

The findings of a 1996 study run contrary to that proposition: "According to the results obtained in 1996, 6,005 scientists separated from their jobs during the period 1989 to 1996 of which 600 emigrated" (Beleva/Kotzeva 2001). There are two important points here. The one is that only 10 percent of the personnel reduction was connected to emigration. The other point is that the emigration of scientific personnel was negligibly small.

According to the National Statistical Institute (NSI), between the year-ends of 1985 and 2000 the number of academic employees in Bulgaria decreased by 4,076, or 15.2 percent. Broken down by academic degree, important differences appear. The number of PhD holders among the scientific employees did not decrease but increased by 54 percent, from 1,016 in 1985 to 1,566 in 2000. The number of MA holders (or equivalent) also increased, but by only 6 percent, from 9,616 to 10,214. On the other hand, the number of academic employees without advanced degree decreased by nearly a third from 16,288 to 11,035 (–32 percent). Out of this reduction of about 5,200 scientific personnel without an advanced degree, about 4,600 occurred in the technical sciences. They, in turn, seem to have been suffering from very considerable overstaffing.

Table 4: Changes in the number of academics by academic degree

Number	PhD	MA	Other	Total
1985	1,016	9,616	16,259	26,891
1990	1,316	10,528	19,810	31,704
1995	1,326	10,112	13,410	24,848
2000	1,566	10,214	11,035	22,815
Change				
1985-90	350	912	3,551	4,813
1990-95	-40	-416	-6,400	-6,856
1995-00	240	102	-2,375	-2,033
1985-00	676	574	-4,235	-2,985
Percent change				
1985-90	34.4	9.5	21.8	17.9
1990-95	-2.9	-4.0	-32.3	-21.6
1995-00	18.1	1.0	-17.7	-8.2
1985-00	54.1	6.2	-32.1	-15.2

Data source: Statistical Reference Book of the Republic of Bulgaria.

It may bear emphasising that the reduction in academic personnel is only that, a reduction, and says nothing about how the reduction came about. It means that outflows from the academic system were greater than inflows into it. Whether the outflows emigrated or retired or went into other occupations remains unclear. Indeed, among these

options emigration could easily have been the most productive one for everybody involved, but we will return to this issue later. Given the findings reported earlier, about the low number of highly educated emigrants, emigration seems to have been the least likely cause for leaving the academic system. Indeed, the reduction in academic employment was, as we saw, accompanied by a rise in employment of tertiary level employment.

Given longer time series of data it would be interesting to see if the past oversupply of highly educated personnel in Bulgaria had in any way contributed to growth. Comparisons of GDP per capita growth in the area do not suggest they did.

If there is a science problem for the nation, it is the excessively low wages necessitating non-science work on the side which eats into the time devoted to research, and, second, the totally inadequate funding of research facilities. A third problem appears to be the lack of demand outside Bulgaria for Bulgarian scientists. If there were more demand, more of them would be employed abroad at adequate incomes and with adequate facilities allowing them to make a more viable contribution to world progress and a greater monetary contribution to their family budgets back home. This would, of course, be desirable.

2. Destination country evidence on skills flows

Very little indeed is known or reported about the skill composition of arrivals from Bulgaria in other countries. Among European countries Germany seems to have been of particular importance as a destination (Gächter 2002), but nothing is known about the skill composition.

2.1 Bulgarian citizens in Greece

Based on arrival and departures data the Athens Labour Centre estimated a stock of about 7,000 undocumented Bulgarian nationals in Greece in 1993, at the end of the transition emigration wave. This compared with 11,800 Russians, 11,600 Poles, 9,200 Filipinos, 8,400 Romanians, 5,200 Lebanese, 3,900 Iranians, 3,500 Iraqis, 2,700 from the former Yugoslavia, and 2,500 Ethiopians (Markova/Sarris 1997). Of the 100 undocumented Bulgarian workers Markova interviewed in the summer of 1996 in the Athens area, three quarters were female, four fifths were over age 30 (and usually under 50), and one fifth had education exceeding completed secondary school. 34 percent were married but few spouses were in Greece.

The majority came from cities in northern Bulgaria. Four fifths had last worked in the Bulgarian public sector, only five percent had never been employed before. A majority, it seems, had last worked as skilled crafts or trades people or in such skilled service occupations as accountant or social worker. About ten percent had been employed in high skill occupations and between five and twenty percent in low skill positions.

2.2 Immigration from Bulgaria to Canada

Canada provides data for the period 1985 to 1996. While more recent data would be desirable, at least this covers the crucial Bulgarian emigration of the 1988 to 1993 period. Over the total twelve-year period arrivals for permanent residence numbered 5,217. Broken down broadly by intended occupation there were 3,340 intending to work, 606 family members not intending to work, 1,097 students, and 174 with unknown intentions. During the first three years, 1985 to 1987, there were only 160 arrivals. During the six-year period from 1988 to 1993 3,016 arrivals were recorded, and 2,041 during the remaining three years from 1994 to 1996.

Not unexpectedly, perhaps, the share of labour declined over time, from 68% in the 1985 to 1987 period to 65% in the 1988 to 1993 period, and to 62% in the 1994 to 1996 period. More unexpectedly, perhaps, the share of family members not intending to work also declined, from 14% before 1988 to only 10% after 1993. The complementary increase occurred in the student category from 13% before 1988 to 20% in the 1988 to 1993 period, and to 24% in 1994 to 1996. The residual "unknown" category went from 6% to 2% and 5%.

Table 5: Arrivals of permanent residents from Bulgaria by intended occupation (broad categories)

	Total	Labour	Students	Family	Unknown
1985-1987	160	108	21	22	9
1988-1993	3,016	1,973	590	387	66
1994-1996	2,041	1,259	486	197	99
Total	5,217	3,340	1,097	606	174
Annual average					
1985-1987	53	36	7	7	3
1988-1993	503	329	98	65	11
1994-1996	680	420	162	66	33
Total	435	278	91	51	15

Source: Citizenship and Immigration Canada

The occupational breakdown provided by Immigration and Citizenship Canada is not really useful in trying to assess the skill composition of the new arrivals. The categories amount more to industrial groupings or functional groupings but leave one to guess the skill levels of workers falling into them. In the case of arrivals from Bulgaria, the largest of 20 categories, comprising 1,455 of the 3,340 labour force arrivals, is "other". Among the remaining 1,885 arrivals, more than one third (666) intended to work in scientific and technical grades, 230 in manufacturing, 152 in art, 138 in services, 135 in clerical occupations, 132 in health related occupations, 67 in

construction, 59 in social professions, 57 in management, 47 in sales, 41 in sports, 28 in transportation, and the remaining 26 in another six categories. The table below amalgamates the twenty categories into seven. Given this list, the "other" category appears to collect all those undecided or unskilled.

Table 6: Inflows into the labour force of new permanent residents from Bulgaria by intended occupation (medium categories)

	Labour	Creative and technical				Support			Other
	Total	Busi-ness	Re-search	Social	Enter-tainment	Services	Production	Shipping	
1985-87	108	1	26	12	3	13	29	3	21
1988-93	1,973	28	391	154	124	147	175	22	932
1994-96	1,259	29	308	75	66	160	110	9	502
Total	3,340	58	725	241	193	320	314	34	1,455
Annual average									
1985-87	36	0	9	4	1	4	10	1	7
1988-93	329	5	65	26	21	25	29	4	155
1994-96	420	10	103	25	22	53	37	3	167
Total	278	5	60	20	16	27	26	3	121

Source: Citizenship and Immigration Canada

Labour force numbers among the landings of Bulgarians in Canada have been on a basic growth trajectory. An exceptionally large number of arrivals was recorded between 1991 and 1993 when the trend – providing for about 2,380 labour force arrivals – was exceeded by about 960 arrivals. Most of the exceptional migration of the period occurred in the "other" category. What was here termed "support" functions has been growing less quickly than the "creative and technical" functions.

From 1997, CIC has been reporting only the top ten countries in each category for each gender. Until 2002, Bulgaria never appeared among them (http://www.cic.gc.ca/english/pdf/pub/facts1999.pdf).

2.3 The Bulgarian-born in the United States

There are detailed data on recent U.S. immigration but the occupation series was discontinued after 2000. Between 1986 and 1988 there were between 205 and 221 admissions to permanent resident status of persons born in Bulgaria. From 1989 the number began to climb, at first to 1,049 in 1992, and then, after decreasing in 1993 and 1994, it rose to 4,925 in 2000 before declining to 3,616 in 2002. Part of the reason for the 2001-2002 decline may lie in the security sea-change from September 2001.

Occupational data refer to the actual employment at the time of applying which could have been in the U.S., in Bulgaria, or in another country. They are not totally complete. For our purposes it is sufficient to collapse the more detailed breakdown of the INS data into three broad categories. Our 'highly skilled' category consists of "professional specialty and technical" and "executive, administrative, and managerial". 'Medium skilled' includes the two categories "precision production, craft and repair" and "sales". Under 'low skilled' the categories "administrative support", "operator, fabricator, and labourer", "farming, forestry, and fishing" and "service" were added together.

Less than half the Bulgarian-born admitted to permanent resident status between 1996 and 2000 were employed at the time of applying. The highly skilled formed a stable share of the admissions until 1999 – about 28%, or 60% to 62% of the employed – but declined in number and in share in 2000. Most of them belonged to the technical and professional subcategory, few to the executive, managerial and administrative one. The medium skilled, i.e. trained workers, formed a small part – around 5% over the period. The share of the unskilled varied between 12% and 15% of the admissions.

Table 7: Occupations of persons born in Bulgaria who were admitted to permanent resident status in the United States in the years 1996 to 2000

	1996	1997	1998	1999	2000	Total
Admissions total	2,066	2,774	3,735	4,172	4,925	17,672
Thereof occupied	965	1,361	1,662	2,030	2,269	8,287
– High skilled	586	821	1,033	1,159	1,062	4,661
– Technical, Professional	502	711	920	971	914	4,018
– Administrative	84	110	113	188	148	643
– Medium skilled	176	228	299	461	599	1,763
– Low skilled	203	312	330	410	608	1,863

Data source: http://www.ins.gov/graphics/aboutus/statistics/index.htm

The share of the highly skilled has been exceeding the share of the admissions under employment preference more and more. By 1998 the highly skilled were nearly four times as many as the admissions under employment preference. It can only be concluded that they individually availed themselves of the diversity program's opportunities (green card lottery). This implies that upon migrating they had no knowledge of whether they would be able to find adequate employment or not. It is not known how many subsequently stayed in the U.S. Normally, re-

emigration rates of 20 to 30 percent, sometimes even more, within ten or twenty years of immigration have been observed (Warren/Peck 1980; Woodrow-Lafield 1996).

Table 8: The admissions to permanent resident status of persons born in Bulgaria by major categories, 1996 to 2002

	1996	1997	1998	1999	2000	2001	2002	Total
Total	2,066	2,774	3,735	4,172	4,925	4,411	3,616	25,699
Diversity program	985	1,843	2,925	3,390	3,660	2,611	1,809	17,223
Family unification	557	553	493	567	831	1,142	1,173	5,316
Employment preference	414	302	277	160	329	535	568	2,585
Other	110	76	40	55	105	123	66	575

Data source: http://www.ins.gov/graphics/aboutus/statistics/index.htm

The U.S. also provides recent data on non-immigrant visas by nationality of applicants. These have been expanding rapidly, from 1,065 in 1996 [or 1997, as the case may be] to 6,431 in 2002. Bulgarians came largely under the heading "exchange". Only 26% were granted H-1B or L-1 visas, which can be lumped together under the title "special work". In absolute numbers there were 5,241 H-1B or L-1 visas awarded to Bulgarians over the period. Culture (including religion) and entertainment (including sports) were less important purposes under which non-immigrant visas were granted to Bulgarians (6%) and about 3% were classified "other".

Table 9: Nonimmigrant visas issued to Bulgarian citizens for purposes other than tourism, by major categories, 1996 to 2002

	1996	1997	1998	1999	2000	2001	2002	Total
Total	1,065	n.a.	1,772	2,589	3,386	4,790	6,431	20,033
Special work	257		493	729	1,071	1,284	1,407	5,241
Culture, entertainment	181		88	133	281	228	235	1,146
Exchange	624		1,179	1,710	1,855	3,134	4,521	13,023
Other	3		12	17	179	144	268	623

Data source: http://www.ins.gov/graphics/aboutus/statistics/index.htm

For comparison: When 1,772 Bulgarian citizens were granted non-immigrant visas in 1998, more than 5,000 of the 8 million Austrians and more than 6,000 of the 9 million Belgians were granted non-immigrant visas with "special work" visas making up 43% and 64% of the total, respectively, instead of merely in 28% in the case of Bulgaria. Since there are no U.S. figures on the resident population nor on emigration it is not possible to assess the degree of return migration to Bulgaria that has surely taken place.

3. Policy options and their empirical basis

As demonstrated above, there is no cause whatsoever for alarm about the supply of educational and occupational skills in Bulgaria. If there were cause for alarm, the policy responses to an educated labour force's proven propensity (rather than mere desire) to leave the country could rely on a number of elements.

These include both measures on the entry side and the exit side of the labour market:

- Increase return migration and reduce emigration
- Replace emigrants by increasing the number of graduations, and by postponing retirements and reducing incapacitation and return to the household
- Replace emigrants by increasing immigration and reducing re-emigration
- Replace emigrants by increasing occupational changes back into high skill occupations and by reducing occupational mobility out of high skill into lower skill occupations
- Turn emigration to the country's benefit by facilitating and encouraging remittances from emigrants and by providing an economic and social framework that will maximise the benefits from remittances

One should also keep in mind that a number of countries have seen rapid and sustained GDP and employment growth while also experiencing substantial brain drain. Taiwan, South Korea, Ireland, and Austria would be cases in point. Recently the information technology industry in India has been an important example, and, although under-researched, the opportunities created by Chinese emigrants around the world.

Can we specify the conditions under which each of the options would be appropriate? What sort of data do we need to decide on the mix of policies? There is an opportunity to shed a few rays of light on how Bulgaria has been faring in these respects empirically. Although some of these points have already been addressed, it is best to go through them in turn.

3.1 Return migration

Return migration could be boon or bane. This will depend very much on the circumstances. A return migration of highly skilled workers into a labour market already glutted with the same skills may add nothing but problems. As is often claimed to be true of migration in general, the benefits of return migration would depend on how complementary the returnees' skills are with the existing labour force, and whether there is an effective opportunity to bring these skills to bear on the economy.

As evident above, there may not be much room for any returnees in the Bulgarian labour market. If it is indeed true that more than 40 percent of return migrants start their own business (Beleva/Kotzeva 2001), this is reminiscent of events in Turkey in the 1980s. Almost all of these businesses collapsed within a very short time, and many of the returnees then re-emigrated.

There is only very sketchy evidence on the extent and timing of return migration to Bulgaria. In 2001, for instance, more than 6,600 Bulgarian citizens apprehended in the EU, the US and Canada were re-admitted to Bulgaria. Most belonged to the Roma minority, it is claimed (SOPEMI 2004:172). It is questionable whether their previous departure from Bulgaria had ever been recorded in the population data.

Only few countries have been providing sufficient data on the arrivals from and departures to Bulgaria to allow a rough estimate of flows in both directions over a reasonably long period. Germany is one and by far the most important. For the period 1990 to 1998, the data show 124,400 arrivals and 98,200 departures from residence in Germany leaving a balance of 26,200 in Germany's favour. During 1990 to 1992, the balance was 43,700 in Germany's favour, but in the next three years, i.e. 1993 to 1995, it was 17,500 in Bulgaria's favour. For the final three years, 1996 to 1998, the balance was even. More particularly, the 1992 returns to Bulgaria seem to be linked to the inflows of 1990, i.e. a lag of two years, while the returns of 1995 seem to be linked to the inflows of 1994, i.e. a lag of only one year. In fact, if the inflows of 1990 are matched with the outflows of 1992, the 1991 and 1992 inflows together to the outflows of 1993, and the inflows from 1993 to 1997 to the outflows one year later, a remarkable correlation coefficient of r=0.99 is obtained. In other words, it was in 1993 that the lag narrowed from two years to one.

The pattern may be indicating two driving forces. The one, responsible for the size of outflows from Bulgaria, would be the political uncertainty of the transition period which ended in 1993. Outflows then subsided to be succeeded by much lower levels of economic migration. The latter, apparently, was almost wholly short-term, i.e. for about one year. The second force would be the level of economic growth in Germany. When growth declined, as it did after the unification boom, the duration of stay in Germany shortened. In 2000, it may have begun to lengthen again in accordance with the somewhat better growth observed since 1999.

From this it appears that Germany made the largest net gains – about 9,400 – from the 1993 emigration from Bulgaria and gained about 13,900 from the 1991 and 1992 emigration. Flows from Germany to Bulgaria peaked in 1993 at over 35,000, and reached 18,000 in 1994, 10,000 to 11,000 each in 1992 and 1995. Unfortunately we do not know how skill selective the flows or the net gains were.

Table 10: German migration balances with Bulgaria and of Bulgarian citizens, thousands

	Bulgaria			Bulgarian citizens		
	from	to	net	in	out	net
1990	11.2	2.0	9.2			
1991	17.4	3.6	13.9			
1992	31.5	10.9	20.6	31.4	10.8	20.6
1993	27.4	35.0	-7.7	27.2	34.9	-7.6
1994	10.5	18.0	-7.5	10.4	17.8	-7.5
1995	8.2	10.5	-2.3	8.0	10.3	-2.3
1996	6.4	7.1	-0.6	6.3	7.0	-0.7
1997	6.5	6.4	0.1	6.3	6.3	0.1
1998	5.3	4.9	0.5	5.2	4.8	0.4
1999	8.2	5.5	2.7	8.1	5.5	2.6
2000	10.5	6.7	3.7	10.4	6.8	3.6
2001	13.5	8.0	5.4	13.2	8.0	5.2
2002	13.2	8.7	4.5	13.2	8.8	4.4
2003	13.4	10.1	3.3	13.4	10.3	3.1
Until '97	90.4	87.8	2.7	119.0	93.3	25.7
From '98	64.1	43.9	20.2	63.5	44.2	19.3
Sum	183.2	137.3	45.9	153.1	131.2	21.9

Data source: SOPEMI 1999:271, 277, 281; Lederer 1997:49f, 275f; Lederer et al. 1999:58-60, 68; Harald Lederer (efms) – personal communication; Richard Wolf (efms) – personal communications.

During a comparable period, 1992 to 1998, inflows of Bulgarian citizens to Germany were only 900 less than the inflows from Bulgaria, and outflows of Bulgarian citizens were only 800 less than outflows to Bulgaria. Almost all the migration between Germany and Bulgaria was undertaken by Bulgarian citizens but Germany's net gains were a mere 3,000 Bulgarian citizens.

From 1998 the pattern was different. Now the migration was not driven by events in Bulgaria but by the demand pull of economic growth in Germany. At this time, the selectivity of migration may also have differed. Flows from Bulgaria to Germany rose from about 5,300 in 1998 to about 13,500 in 2001 and then remained roughly the same until 2003. Flows from Germany to Bulgaria rose steadily over the whole period from about 5,000 in 1998 to about 10,000 in 2003. Germany gained about 19,000 population from these flows Pretty much the same was true for the flows of Bulgarian citizens into and out of Germany where the gain was about 20,000. These gains are not final, though, since the migration story of the 2000 boom is not finished yet.

About other countries we know even less. Switzerland, from 1988 to 1998, received nearly 2,400 Bulgarian citizens and saw about 1,100 depart gaining less than 1,300 in the process.

In Austria, at a later period, 1996 to 2001, roughly 4,100 Bulgarian citizens were granted some form of residence rights while about 2,400 departed leaving a balance of only about 40 percent of the inflows. Again, nothing is known about the skill composition. But obviously the numbers are too small to really matter.

Table 11: Migration balances of Bulgarian citizens

	Austria			Switzerland		
	in	out	net	in	out	net
1988				126	73	53
1989				150	106	44
1990				169	100	69
1991				191	77	114
1992				252	118	134
1993				247	108	139
1994				224	114	110
1995				241	107	134
1996	566	387	179	228	102	126
1997	645	451	194	257	91	166
1998	661	377	284	294	121	173
1999	644	366	278			
2000	686	370	316			
2001	891	477	414			
Sum	4,093	2,428	1,665	2,379	1,117	1,262

Data source: Statistics Austria; Swiss Statistical Office.

There is scant evidence from Bulgaria on the extent of return flows. A survey by the Centre for the Study of Democracy in 1996 "showed that 20% of those who left the country after 1989 came back" (Beleva/Kotzeva 2001). According to NSI estimates gross outflows between 1990 and 1994 were about 313,000. This is almost certainly an underestimate, since the net emigration of 1990 and 1991 implied by the demographic data exceeds the gross emigration estimates by more than 63,000. If outflows to Turkey were excluded, the figure would be around180,000 or perhaps even less. This would imply return flows of up to 36,000. If the underestimations are taken into account, the return figure would be around 48,000. As was to be expected, this return seems to be going to urban rather than rural areas while the original emigration was from rural areas. This is rural-urban migration, except that it included a temporary stay abroad. On the other hand, the OECD claimed that "between 1992 and 2001, a total of 19,000 Bulgarian migrants returned home permanently" (SOPEMI 2004:172).

This figure must be considered against a background of gross immigration during this period exceeding 400,000, if the demographic data and NSI estimates are correct. The implication would be that more than 380,000 immigrants were not Bulgarian or re-emigrated or were in some other way excluded from the "permanent" category. This is hardly credible.

If the experience of other countries is any guide, it would seem that improving economic conditions in Bulgaria along with an absence of corruption from the administration and from public life may trigger noteworthy return flows. Ireland, for instance, is a country where for decades the emigration to the U.S. and the UK of the highly educated was a regular and even encouraged feature. All the while the government kept using public funds to raise the overall levels of education, to eradicate illiteracy, and to create a percentage of university degree holders. From the mid-1980s the country underwent rapid economic growth. The highly educated appear frequently to return to Ireland at a later stage in their careers. "Estimates based on 1991 Irish Census data, reveal that no less than 30% of the population aged over 40 years with third level qualifications had resided outside the country for at least one year.

The corresponding proportion for the adult population as a whole (i.e. 25 years of age and over) was 10%. This represents a very high return rate (it is undoubtedly higher now) for the most educated emigrants ..." (SOPEMI 1999:156). "Since 1985 high economic growth in Ireland has encouraged the return of the more qualified emigrants without slowing down the exodus of young, less qualified people" (Lobo/Salvo 1998:257). Similar observations could be made for New Zealand, where more than 20,000 New Zealand nationals per year return (Lidgard 1993), or for Taiwan, which has also had considerable rates of skilled emigration while developing rapidly and which is attracting return migrants in substantial numbers (Migration News April 1995). Austria would be another case in point, less of the return flows, but definitely of rapid economic growth while at the same time experiencing a continuous emigration of skills, knowledge, experience, and talent, mainly to Germany.

More comparable than the experience of Greece, Italy, Spain and Portugal, who saw substantial return migration of labourers, perhaps, is the experience of the Return of Qualified Nationals Programme run for many years by the International Organisation for Migration (IOM) (Pires 1992). Participation is not terribly impressive. For instance, between 1983 and 2001 less than 2,000 Africans returning to 11 African countries were recruited through or assisted by the RQN Programme (Omelaniuk 2001). This amounts to only about ten cases per country and year.

In regard to the return of its (former) citizens, Bulgaria finds itself competing in a market for highly skilled workers that for the time being may have become more a seller's market. Workers with engineering skills and functional English tend to have a degree of choice, at least regarding the company if not always the country. This

may change, eventually, but there are also indications that the phenomenon is spreading to further occupations like nurses, actuaries, even masons and other craftspeople for whom there is a demand as the expansion of education, the demographic changes, and the limits to immigration have dried out the local markets in the richer parts of the European Union. Less than it used to be is the country of origin a "natural" place to choose for an emigrant not wishing to stay at the current place of residence. All this places more emphasis on the ability of an origin country to attract back its (former) nationals. By analogy, this also applies to the highly skilled and highly educated still resident in Bulgaria. National sentiment is rarely enough to retain valued personnel and especially young talent (Mahroum 1999a, 1999b).

That Bulgarian governments, since 1989, have altered the previously negative stance towards emigrants, is surely a step in the right direction. There is now an emphasis on inviting emigrants to return. The new Bulgarian Citizenship Act, dating from 1997, permits dual citizenship "and lays down the principles of an integration policy for Bulgarians living abroad aimed at facilitating their economic and social links with Bulgaria. ... the Act abolished the principle under which Bulgarian emigrants lost their nationality when leaving the country" (SOPEMI 1999:117).

However, even attracting them back may not be good enough. Turkey, for instance, has experienced a very large number of cases of re-emigration of return migrants whose expectations were not fulfilled. As far as is known, re-emigration occurs within one or two years of return. Dikaiou (1994) has shown for Greece that return migrants – mostly from Germany – take two or three years to adapt their aspirations and expectations to what Greek society has to offer (see also Arowolo 2000; Glytsos 1995). IOM, too, has seen participants in its Return of Qualified Nationals Program re-emigrate from the countries they returned to (Pires 1992). For instance, given the large share of workers in Bulgaria with tertiary education, any highly qualified returnees would be facing an adverse labour market. Indeed, Bulgarian graduates from Austrian academies and universities have found it hard to find employment in Bulgaria. Further, return migrants do not usually have a dense network of personal relationships. Unless they can rely on the courts for justice they may find themselves easy prey for local operators. Freedom House, in 1999-2000, described Bulgaria in the following words: "Under the constitution, the judiciary is guaranteed independence and equal status with the legislature and executive branch. Corruption, inadequate staffing, low salaries, and lack of experienced personnel continue to hamper the system. Police frequently mistreat prisoners and detainees, according to domestic and international monitoring groups. ... High rates of corruption, widespread organized crime, and continued government control of significant sectors of the economy impede competition and equality of opportunity" http://freedomhouse.org/survey99/country/bulgaria.html. Clearly, there is scope here for the authorities to improve the conditions for legitimate investment.

3.2 Incentives to stay, disincentives to leave

How does one make people stay? This is one of the most under-researched migration questions. Borjas (1987), providing empirical evidence from U.S. censuses, suggested the answer may differ according to country and income level. Those with a potentially large income would chose to move to a place with more unequal incomes, since this would give them greater buying power than moving to a place with more equal incomes. The reverse would be true for those with lower income potentials. Assuming that the more highly educated would also earn higher incomes, a government might be persuaded to keep incomes unequal in order to motivate the highly educated to stay or to immigrate. Clearly there is little scope for such a policy in most of Europe. The question is to what degree Borjas' findings are an artefact of other variables. There are precious few skills that can be transferred abroad. In practically all instances considerable language skills are required. Lacking these, deskilling for the highly educated would be far more intense than for the less educated. This may keep people from migrating on the one hand and has provided for considerable mobility of English spoken professionals. But limiting the language skills of the highly educated in a bid to monopolise them would be likely to backfire. It would disable them from participating in the ideas and techniques generated elsewhere forcing them to spend most their time re-inventing wheels.

Asking emigrants to repay the education they had received is currently only possible upon naturalisation in a country demanding they give up their previous citizenship, as in the case of Germany. These same countries also tend to require long waiting periods before naturalisation is possible. Thus the repayment would occur many years after the emigration from Bulgaria.

All in all, migration management in the sense of discouraging the highly educated to leave, is not a viable option in a liberal democracy.

3.3 Graduations and retirement

One option is the replacement of emigrants by new graduates. Emigration would tend to improve their chances for quick advancement through the academic ranks which might make employment at home preferable to emigration, at least for some. In addition, as argued by Oded Stark (2004), a chance at emigration may be a strong enough incentive for people to seek the requisite education and training that in fact the emigration would be overcompensated.

The number of new university graduates has been rising steadily since 1994. It was 21,951 then and more than double that, i.e. 45,469, in 2002. Before 1994, the number of university graduates went from 15,308 in 1985 to 19,087 in 1989 and then rose further to 23,886 in 1992. At 21,150 the number was reduced in 1993. The number of advanced research degrees awarded at Bulgarian universities to citizens of the country also doubled between 1994 and 2002 by rising from 181 to 354.

It should also be remembered that Bulgaria does in fact have an unusually large labour force with tertiary education. This labour force has been growing, and so has its unemployment. This state of affairs may be suggesting there is rather too little emigration.

3.4 Immigration of highly qualified personnel

In Bulgaria, work permits are issued only for persons with at least a secondary school degree or equivalent and only for work requiring specialised knowledge and skills. They have to be applied for by the employer, and issuing began on 1 September 1994. In this way, the number of work permits gives an indication of the inflow of (highly) skilled non-Bulgarian personnel, but only an indication because there are many exceptions from the permit requirement. Sometimes persons who are employees for all practical purposes are formally made partners in an investment which, of course, frees them of the permit obligation. The number of registered persons of any nationality usually exceeds the number of work permits issued to that nationality quite substantially. However, not all of the difference can be expected to be attributable to permit exemptions. Some of the registered persons not also holding a work permit may be emigrants returning to Bulgaria with a pension and another country's citizenship, and some will be non-working family members of immigrants.

Being issued to the employer rather than the migrant the work permits are quite obviously not meant for permanent immigrants. Even so, a continuous turnover of sojourners or expatriates could be bolstering Bulgaria's stock of highly qualified personnel permanently.

There has been continuous and rapid growth in the number of work permits. "The number of [work] permits issued from September 1994 to October 1996 amounted to around 600, of which one fourth were granted to nationals of the United States, followed by the Former Yugoslav Republic of Macedonia, the United Kingdom, Ukraine and Russia. Work permits are issued only to qualified foreign workers. The main occupations were engineers, senior managers, consultants and teachers" (SOPEMI 1997:82). By 23 November 1997 1,042 work permits had been issued, and by 30 September 2000 1,497 permits had been issued. The largest number of permits went to managers: 261 until late 1997 and 435 until the end of September 2000. They largely originated from Greece, Great Britain and the U.S. In 1997, they were closely followed by instructors, almost all of whom were U.S. American, but by 2000 there was a large difference between the two skill groups. The third largest group were technicians, a quarter each of whom were from Macedonia, Romania and Ukraine. Engineers, half of them from Russia and Ukraine, came next. The number of permits issued to engineers rose very little between 1997 and 2000. Only a small part of the permits was issued to consultants. Between 1997 and 2000 they were overtaken by sports people, half of them from Yugoslavia and Russia (Anonymous 2000).

Table 12: The number of work permits issued until 1997-11-23 and until 2000-09-30 by skill class

	1997	2000	change	percent change
Managers	261	435	174	66.7
Consultants	57	71	14	24.6
Engineers	163	174	11	6.7
Technicians	215	281	142	66.0
Instructors	253	325	72	28.5
Sports	33	116	86	260.6
Other	60	95	35	58.3
Total	1,042	1,497	455	43.7

Data source: Anonymous 2001.

The 250 work permits granted in 2000 reflect the average of the 1995 to 2000 period. The 348 granted in 2001 (SOPEMI 2004) were two thirds above that average. This may have been due in part to the economic situation, but perhaps also to changes in the legal environment. "In 2001, a new law was introduced to facilitate the entry of highly skilled labour into Bulgaria. Simplified procedures to obtain work permits exist for foreigners who meet one of the five following conditions: employed on the basis of bilateral labour agreements; internationally-recognised scientists and contributors to world culture; senior managers of foreign investment firms established in Bulgaria; skilled specialists employed by foreign companies installing equipment in Bulgaria, or quality control specialists sent to Bulgaria by a foreign company" (SOPEMI 2004:174). This catalogue is, of course, not much different from other countries.

3.5 Occupational mobility

No sufficiently detailed data about job changes were available. The data presented above indicate there continues to be substantial mobility out of the lower educational grades in academic institutions given to the engineering sciences. Other than that there were no indications of substantial mobility out of or into academic employment. Again, it should be remembered the labour force with tertiary education has been growing.

3.6 Remittances and repatriation of savings

Given the large share of asylum seekers among the Bulgarian emigrants since 1989, the lack of return orientation is perhaps less than surprising. But being a refugee neither excludes having relatives nor supporting them. The complete absence of remittances from the Bulgarian balance-of-payments statistics is therefore, in a way, astonishing. Between 1980 and 1993 workers' remittances, as reported by the World Bank, were zero. Since then they went unrecorded (World

Bank 2004). This is not to say, there were none. There certainly were remittances outside the banking system such as money and goods brought back personally and given to relatives. Given Bulgaria's monetary tribulations in the 1990s it is all the more likely that any remittances avoided the banking system. This is deplorable, since better liquidity would have enabled the banks to offer lower interest rates, and this would have helped to spur investment (Glytsos 2001). Given a trustworthy and fast banking system and restraint in the taxation of private transfers, this position could probably be much improved (Karafolas 1998; Taylor et al. 1996a, 1996b).

Anecdotal evidence in Austria would seem to suggest remittances to Bulgaria, in 1999, ran at an average level of, perhaps, $100 per month and income earner. If there are around 190,000 former and current Bulgarian nationals living in the West, and if a third of them are employed (Gächter 2002), this would be a sum of about $75 million per year. This does not include the remittance flows from Turkey. Nothing is known about them, but if we assumed them to be only $10 per month sent by 350,000 employed, this would add up to another $42 million per year. Together, this is below $120 million per year. These figures, it must be emphasised, are worse than anecdotal, and research would be needed to verify them.

Nor is anything known about the use made of remittances in Bulgaria. In one instance it was reported that, "According to some authors, those emigrants who came back invested their savings in starting their own business (43%) or in buying real estate (31%)" (Beleva/Kotzeva 2001). As already noted, this would be an unusually large share of business investment. Real estate, though, is a frequent item to be purchased from remittances, especially if there are no better investment opportunities or if migrants plan to return home permanently. It has been shown that it would be a grave mistake, concerning remittances, to look at only the sheer amount (Adelman/Taylor 1988, 1990; Taylor et al. 1996a, 1996b; Glytsos 1993, 2000, 2001). The receiving household spends the money, and in this way it becomes other households' income. They, in turn, spend the money again, and so on. The receiving country's wealth therefore grows by more than the amount remitted, typically by 1.5 to 3 times the amount. The multiplication effect does not arise from any particular economic activity of the receiving households. As long as they spend the money all is well. From Glytsos' analysis it emerged that "contrary to popular opinion, expenditure on housing is very productive, with a multiplier of 2.0, which is actually much higher than the multiplier of spending on machinery (1.7)" (Glytsos 1993:149). In other words, it appears to be best if households spend remittances in a manner customary to them rather than venturing into new activities for which they lack the experience and the training. Their demand for consumption goods, be they durable or not, will create increased production and investment by other households and firms who are versed at these activities. It is from this that the major development benefit of remittances arises.

Greece, Turkey, Macedonia, and Croatia, in the latter half of the 1990s, all received remittances from emigrants in the range of 2% to 3% of GDP. The same was probably true of Yugoslavia (see Grecic 1990 for an earlier period). If Bulgaria had been in the same league, remittances would have totalled between $250 million and $350 million in 1998. Austria, with a similar number but perhaps more highly skilled emigrants in the West, received annual remittances of $540 to $570 million at the beginning of the 1990s, and about $330 million at the end of the decade (World Bank 2001, 2004). This was in the vicinity of $70 per inhabitant of Austria in the early 1990s, and about $40 at the end. This is meagre, if compared to the $285 per inhabitant Greece received in 1995, or even the $153 per inhabitant that reached Albania in 1996. If Bulgaria had indeed been receiving the less than $120 million we guessed, this would have been below $15 per inhabitant. This is clearly far below potential. A level of at least three times as much would be more in line with expectations. So, perhaps, the guesses made above about the number of persons remitting and about their average amount remitted were too much on the conservative side.

If return is a less than likely option, supporting emigrants politically while abroad could be considered as a measure to foster positive feelings towards the home country and its institutions. It is sometimes useful if home country governments remind receiving country governments of their obligation to protect the rights of migrants. International forums could serve as a stage for such activities.

Emigrants may, however, have ambivalent feelings about receiving political support from home country institutions. Educated emigrants, perhaps especially, might feel they are being cast as a group and hindered in their effort to blend into the receiving society. It would be imperative to pursue a support policy quietly, except after truly grave occurrences.

A policy of maximising remittances would have to include a number of measures not least in education:

- Transferable occupational and educational skills are required, i.e. diplomas recognised outside Bulgaria, which may require partnership with educational institutions in prospective receiving countries.
- Training in the languages of the prospective receiving countries is required.
- Companies may not speak the same language as the country in which they operate. In engineering or management the language at work often is English regardless of the country. It will take fluency in both languages but especially in the working language.
- Supply personnel for industries with high employee turnover, like nursing.

- Supply personnel for industries in countries with large cohorts retiring at a time. Research would be necessary in order to pinpoint a policy in this way.
- Multilateral and bilateral agreements with receiving countries
  - covering mutual recognition of qualifications,
  - assuring smooth processing of applications for permits if not permit-free entry, residence and employment,
  - regulating the portability of many kinds of benefit entitlements, most importantly health, pensions, and unemployment.

Remittances, in some places, have also been a curse when they fueled violence as in Northern Ireland, Kosovo and elsewhere. This is not a likely outcome for Bulgaria as long as policies remain reasonable. In very extreme cases there could be a danger of Dutch disease, i.e. an overvaluation of the currency due to high demand from remittance senders or remittance recipients that impedes exports. Such dangers are usually short-lived and can be guarded against by the central bank.

3.7 Transnational communities

Indian emigrants in the U.S. have become important sources of and conduits for investment in India (Khadria 2000, 2002), especially in the information technology sector. This occurs in a dual way. They provide first hand experience of Indians for employers who may in this way gain the confidence to enter into business relations with companies in India or even to invest in the country. Secondly, Indian emigrants have been finding business opportunities in the U.S. which also led partly to business links with firms in India and partly to investment there. Recently a third avenue has come into being. Indian companies use links with Indian emigrants to invest in business ventures in the U.S. (and elsewhere) which again lead to expanded employment in India.

All three continue to be true in Ireland, South Korea and Taiwan too. Were it not for the experience large US employers have been having with Irish-derived employees, they might not have been nearly as willing to invest in Ireland. Austria's linkages especially with Germany but also with other countries, are a further case in point. Not yet India, but all the other countries mentioned have been combining decades of brain drain with rapid, sustained and broad-based wealth creation.

To add one more example, Chinese emigrants have recently been creating a demand for China-made goods around the world by setting up stores in poorer neighbourhoods selling cheap imports. Once again emigration contributes to job creation in the origin country.

4. Overall assessment and conclusions

A cautious overall assessment would include the following points:

- Bulgaria enjoys a large and rising supply of highly educated personnel. As in the case of Greece, this supply appears to be in excess of the requirements of the economy and cannot fully be absorbed productively.
- The reductions in the number of science employees were focused on personnel without an advanced academic degree, mostly in the engineering sciences, and represent an adjustment of numbers to a sustainable level of science employment. Emigration played only a minor role in the reductions. A larger role for emigration might have been desirable.
- By comparison with other countries, and in relation to Bulgaria's GDP per capita at purchasing power parity, Bulgaria keeps enjoying a large share of workers with completed tertiary education, a large number of physicians, and a sufficient number of scientists and engineers in research and development.
- The question may be asked whether changes to the infrastructure, the institutions and the legal environment would not increase the remittances sent by emigrants, and whether this would not also increase the economic growth to be gained from each quantity of remittances.
- There has been an appreciable immigration of highly skilled foreign personnel.
- As with remittances, further improvement of conditions in the country may make investments from abroad more likely and may facilitate a further inflow of highly skilled personnel, some of which would likely be (former) Bulgarian nationals now in the employ of international firms.

In a more detailed earlier report (Gächter 2002), it was also found that a substantial return flow to Bulgaria could be observed, from Germany in particular, which was linked closely to previous emigration. Further is was found that comparatively few of those living in Bulgaria were planning or even hoping to emigrate, even at the height of the 1996 crisis. The employment participation of working age Bulgarians in western countries appears to be low while in the Czech Republic it seems to be high but also highly responsive to the business cycle. Overall the report found little to support the notion that Bulgaria has experienced a serious brain drain or that it could gain much from the return of the emigrants.

All this can serve as evidence that Bulgaria has not been suffering a decline in national development potential from emigration, but it has been unable to make the best use of the opportunities arising from having a stock of emigrants abroad. There is no reason for alarm over emigration. Confidence in the capabilities of Bulgarian society would, in fact, be far more appropriate, along with a further decided push to improve the legal and political framework for economic activity.

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Linke Wienzeile 246
A – 1150 Wien
Tel. +43-1-4950442 Fax. +43-1-4050442-40 e-mail: institut@zsi.at http://www.zsi.at

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Persönliche Kontaktinformation

Mag. August Gächter ist wissenschaftlicher Mitarbeiter und Projektleiter am ZSI
e-mail: gachter@zsi.at

Mehr Information:
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