

Where are the Golden Young People of Turkey?

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Abstract: Each year, top performing students in Turkish college admissions exam receive an award from İş Bank. The bank names the recipients as the “Golden Young People of Turkey”, and advertises the award in national newspapers. In this paper, the names of all 1,935 recipients who got this award between 1974 and 2004 are searched on the internet and their residencies are determined for the year 2017. 37.4% of the recipients are found to reside abroad. Foreign residency ratio is higher for non-medical recipients (42.8%), non-medical female recipients (47.9%), and non-medical recipients who obtained their PhD from abroad (65.3%). 75% of the non-medical recipients who live in foreign countries left Turkey for education. Foreign residency ratio of all cohorts except for 1980 is higher than 20%. Cohorts after 1986 have higher foreign residency ratios possibly because of the declining popularity of medical schools. Many recipients left Turkey but few recipients returned back in recent years.

Keywords: Brain drain, human capital, college admissions

JEL classification: O15, F22

1. Introduction

Turkey is a developing country that has limited resources. One key resource for development is human capital. Like other developing countries, Turkey experiences brain drain as some of its already limited skilled labor force reside in foreign countries (Docquier et al. 2007, Yuret 2017).

İş bank - a large private commercial bank in Turkey – started a long-standing campaign to award top performing students in college admissions tests in 1971.¹ The bank advertises the award in national newspapers, and names the recipients as the “Golden Young People of Turkey”. The recipients are introduced as Turkey’s hopes for its future. A decent monetary reward to the recipients is also acknowledged in the advertisements. Up until recently, the names and high schools of the recipients were also announced in the advertisements, so the individual recipient and his/her high school also benefitted from public recognition.

In this paper, we investigate whether the Golden Young People of Turkey realized their hopes in Turkey. We track all 1,935 recipients who got this award between 1974 and 2004, and see where they are in 2017. Since most candidates are around 18 years old when they take college admissions test, the recipients are in their early 30s to their early 60s at the time when the data is collected. Therefore, we measure the extent of brain drain of this *crème de la crème* group of Turks when they are in active work life.

We try to understand the nature of foreign residency of the Golden Young People. We compare foreign residency of younger cohorts with that of the older cohorts to understand whether the brain drain problem is more pronounced in younger generations. We also focus on recent years and determine the rate at which Golden Young People leave the country and return back to see whether the brain drain problem is increasing in recent years. We compare Golden Young men to Golden Young women to see whether gender is an issue for staying in Turkey. We try to understand the role of education as the exit motive for those who live abroad. We also analyze recipients who are medical doctors or PhD holders to understand the role of education in foreign residency.

2. Related Literature

Docquier et al. (2007) analyze emigration of skilled workers by using nationally representative data from various countries. All workers with postsecondary education is considered as skilled workers. It is found that countries that are small, politically unstable, and located close to developed countries are more likely to suffer from brain drain.

¹ We are not connected with İş Bank. We did not receive any form of support from the bank.

The focus of this paper is the brain drain of highly skilled workers. When emigration to USA is considered, the extent of brain drain for highly skilled Turkish workers is very different than brain drain of skilled Turkish workers. Turkey is ranked 41st when countries are sorted in terms of the number of people who are born in that country, have some college degree and reside in the United States.² When countries are sorted in terms of the number of professors who have undergraduate education in that country and work in top 48 US universities, Turkey is ranked 13th (Yuret 2017).

A close study to ours in terms of scope is Gibson and McKenzie (2011). The paper investigates brain drain of top talent from three island countries. Around 1,800 exceptional students from New Zealand, Tonga and Papua New Guinea who were members of math and chemistry olympiad teams, valedictorians in prestigious high schools or best achievers in national-level college scholarship exams are tracked. We will compare their results to ours in Section 4.

Tansel and Güngör (2003) survey Turkish graduate students in foreign universities. They find that the main reason for intention to stay in foreign countries is for career development. Economic and political instability are found to be the main deterrents, and missing family is found to be the main reason for returning back to Turkey. In Section 6, we will compare the ratio of graduate students who intend to return in that study to the ratio of the Golden Young People who actually return.

3. Data

We collect the data from various internet sources. The first step is to find the names of the Golden Young People. İş bank advertises the award in multiple newspapers. The names of the recipients are extracted from Milliyet newspaper which maintains a good internet archive and publishes the award advertisements regularly.

The cohorts between 1974 and 2004 are used in this study. İş bank established the award in 1971. In the first year, only ten people were awarded. We could not find the advertisements of the award for 1972 and 1973 exams. There was a cheating scandal in 1973 that might have contributed to this difficulty. The same scandal contributed to the establishment of Turkish central examination authority in 1974. We could not find the advertisements in 2005 and 2006. We do not intend to use later years because many recipients from those cohorts would be in their graduate studies at the time we collect the data.

Advertisements of the award in all of the years between 1974 and 2004 except for 1996 are available. A newspaper reporter complained about lack of public announcement of “champions” in 1996 which may explain the difficulty of finding the advertisement for that year.³ It is possible

² US census provides emigration numbers by each country in “<https://www2.census.gov/programs-surveys/decennial/tables/2000/stp-159/national/>”

³ Milliyet, 8th of August 1996, page 19.

that İş bank was not able to access the names of the top performers and give the award on time. As a result, we are unable to include 1996 cohort in this study.

İş Bank gave the award to equivalent number of students to its age between 1974 and 2004. The bank was established in 1924, so there were 50 Golden Young People in 1974 and 80 Golden Young People in 2004. 1,945 awards were distributed during this time period. There were eight people who received the award twice and one person received the award three times in the earlier years. It has been noted in the advertisements after 1980 that the award can only be given once. We count each person once when they get their first award. Therefore, there are 1,935 individual recipients in our data-set.

Along with names, the advertisements contain the names of the high schools of the recipients in all years except for 1988 and 1999. The recipients are called the “Golden Young People of Turkey” for the first time in 1988. The bank currently uses this name in the advertisements but no longer advertises the names of the recipients or their high schools possibly for privacy reasons.

The monetary reward to each individual recipient is also announced with the advertisements in all years except for years from 1995 to 2000. We convert the monetary rewards from different years to current (2017) US dollars. The reward ranges from 1,383 dollars per recipient in 1974 to just 199 dollars in 1984. The average reward is 528 dollars.

We search names of recipients on internet in January and February 2018 to find their locations as of end of 2017. We also collect information about their gender, their undergraduate and graduate degrees, and dates when they left or returned back to Turkey.

We use social media such as Facebook and Linked-In along with internet search engines such as Google and Google Scholar to track recipients. High school names of the recipients are especially helpful in earlier years when most recipients graduate from prestigious high schools, and include high school information in their social media accounts. Bilkent University, which is a popular destination for recipients, provides the list of all of its honor students on the internet, and this information helps us track their graduates. The female recipients are a real challenge when they do not use their maiden names. We contacted some of the recipients to avoid name confusions. However, some name confusions are still inevitable.

At the end, we could not find the current locations of 124 recipients which is 6% of the sample. The ratio of the missing information is 5% for male recipients, 11% for female recipients, and 6% for all. 20 recipients sadly passed away. Therefore, we could determine the residencies of 1791 (1935-124-20) recipients.

4. Analysis: Countries where Golden Young People reside.

Table 1 lays out the current locations of 1791 Golden Young People. 37.4% of the recipients currently live abroad. Foreign residency ratio of highly skilled workers are found to be 41% in New Zealand, 50% in Tonga and 9% in Papua New Guinea (Gibson and McKenzie 2011). All three countries are small island countries with colonial history. It is surprising that foreign residency ratio of highly skilled workers in Turkey which is a large country that has no colonial history is comparable to that of these three countries.

94.7% of foreign residencies are either in Europe or North America. The ratio of Golden Young People who reside in the United States is 24.8% (444/1791). This ratio is not comparable to the ratio of all Turks who reside in the United States. According to 2000 US Census, there are only 78,380 Turks who reside in the United States.⁴ If all Turks migrated at the same rate as Golden Young People, there would be 16.8 million Turks in the United States.⁵ Foreign residency ratio of people who have some college degree is also very different than that of the Golden Young People. There were a total of 27,661 Turkish college graduates who reside in United States in 2000, and this group constituted around one percent of total Turkish college graduates at that time.⁶ One percent Turkish college graduates who live in United States may not be seen as a serious threat to Turkish human capital, however the ratio of Golden Young People who reside in the United States may be considered as alarming.

Table 1. Countries where Golden Young People reside

	# of recipients	Ratio over all recipients
Foreign	669	0.374
Turkey	1122	0.626
Total	1791	1.000
	# of recipients	Ratio over recipients who reside abroad.
Country	Continent	
USA	444	
Canada	18	
North America	462	0.691
UK	52	
Germany	32	
Switzerland	22	
Netherlands	20	

⁴ <www2.census.gov/programs-surveys/decennial/tables/2000/stp-159/national/>

⁵ The population of Turkey was 67.8 million in 2000 (< www.tuik.gov.tr/PrelstatistikTablo.do?istab_id=1588>). 67.8 million times 24.8% is 16.8 million.

⁶ The ratio of college educated in Turkey in 2000 (8.34%) is attained from: <data.oecd.org/eduatt/adult-education-level.htm#indicator-chart>. The population of Turkey in 2000 by age groups is attained from the same source as Footnote 5, and the number of college educated Turks in the United States is attained from the same source as Footnote 4.

Rest of Europe	45		
Europe		171	0.256
Central Asia	3		
East Asia	9		
Middle East	15		
Asia		27	0.040
Australia		8	0.012
Africa		1	0.001
Foreign Total		669	1.000

5. Analysis: Trends in Foreign Residency

Figure 1 shows foreign residency ratio of Golden Young People from different exam cohorts. The ratio is above 20% in all cohorts except for 1980. High foreign residency ratio is not specific to younger generations. The ratio is 45.2% in cohorts between 1986 and 1995, but falls to 38.6% in cohorts between 1997 and 2004.

Foreign residency ratio is 27.0% in cohorts between 1974 and 1985, and the ratio is 42.3% in cohorts after 1985. The main reason for this increase seems to be the declining popularity of medical schools after 1985 as can be seen from Figure 1. In Turkey, medical education starts at the undergraduate level and the majors are selected at the college entrance examination period. The ratio of Golden Young People who are educated to be medical doctors is well above 50% in many cohorts before 1985. The ratio has fallen to 3% in 1987 and stayed below 10% until 2004.

The sharp fall in the ratio of Golden Young People who choose to become medical doctors may be caused by the compulsory service law instituted in August 1981 just after the military decoup in September 1980.⁷ The law states that all medical doctors should serve in the underdeveloped regions after medical education. Hacettepe University, which is a popular destination for Golden Young People for medical education started to offer medical program in English in 1982. This move may have delayed the decline of medical major for a couple of years. In 1986, Bilkent University which was established as the only private university in Turkey quickly became the popular destination for the Golden Young People for non-medical majors. This factor may also have contributed to the lower popularity of medical major after 1986.

⁷ Source: <www.tbmm.gov.tr/tutanaklar/KANUNLAR_KARARLAR/kanuntbmmc072/kanuntbmmc072/kanuntbmmc07203579.pdf>

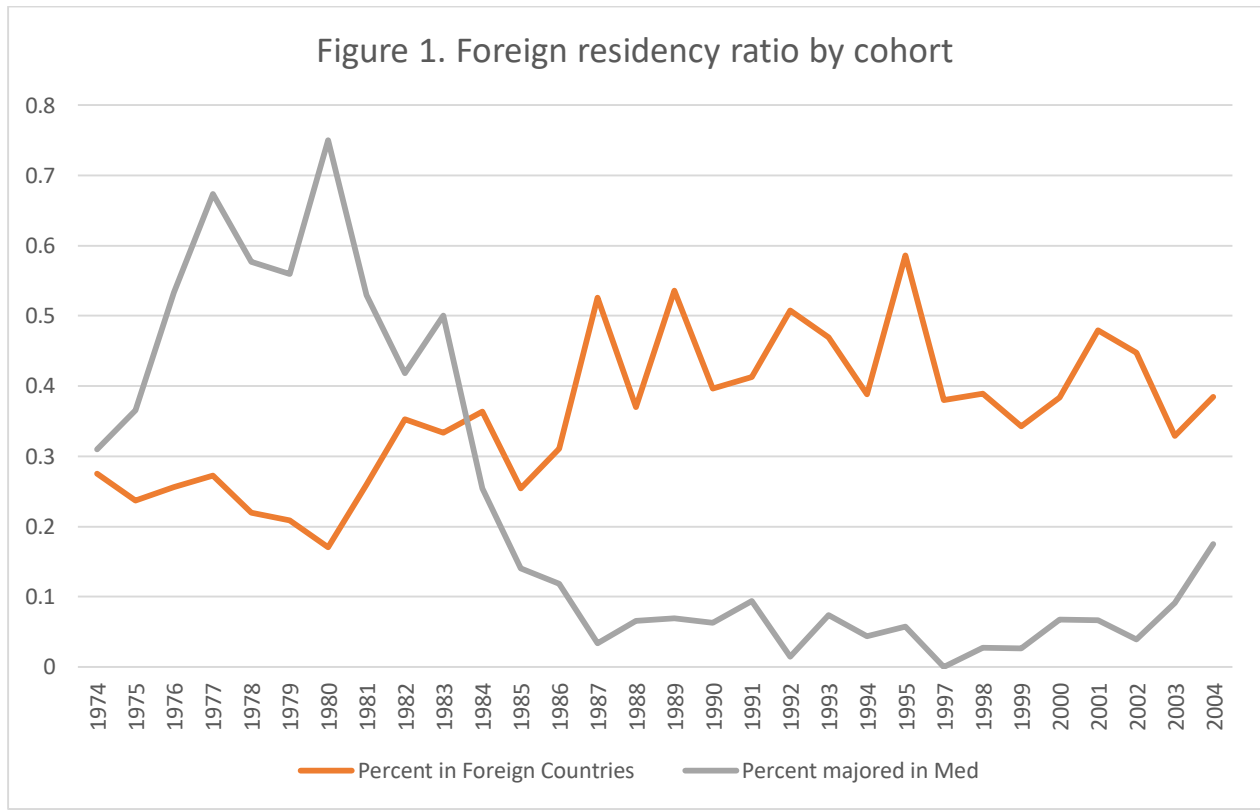
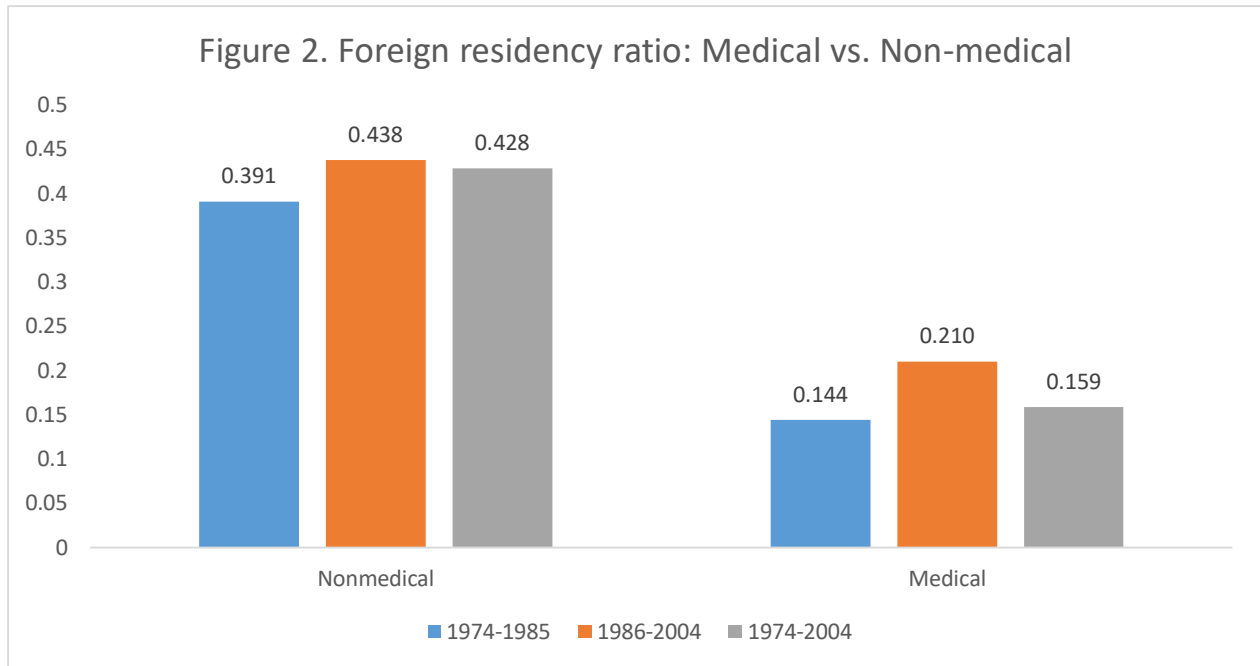
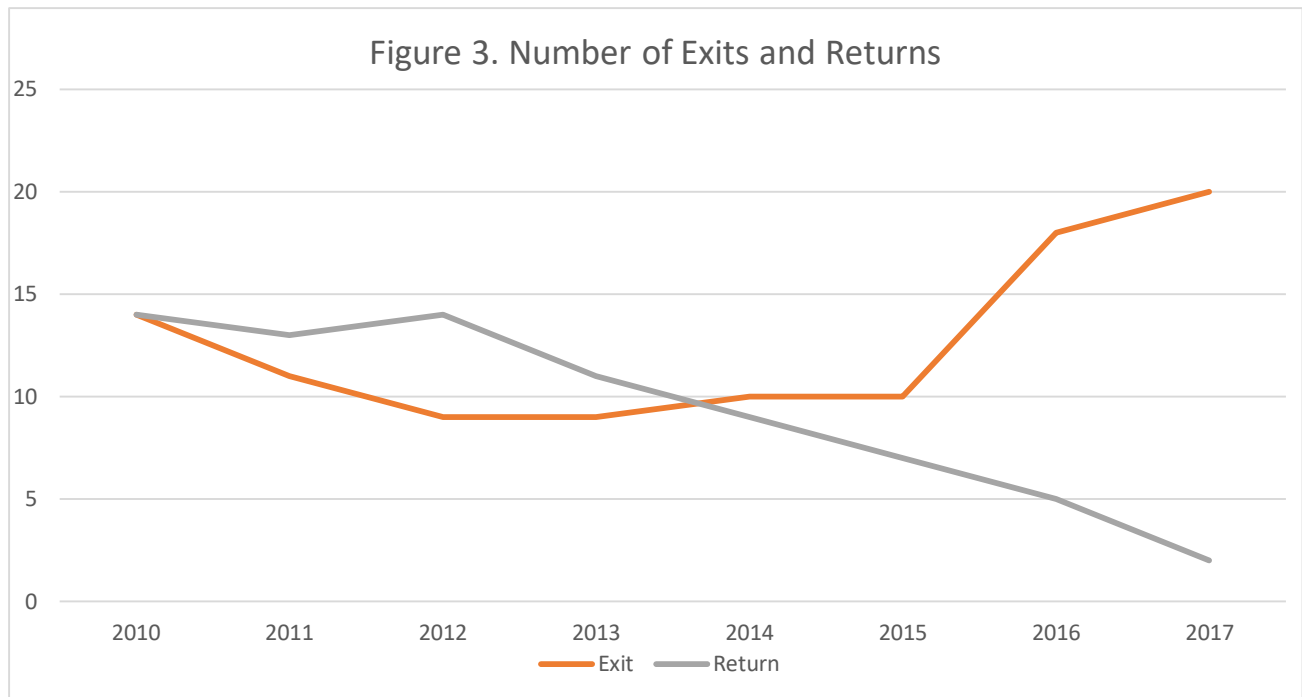


Figure 2 shows foreign residency ratio of medical and non-medical Golden Young People before and after 1985. Foreign residency ratio of recipients who studied non-medical majors is 39.1% for earlier cohorts, and the ratio increases to 43.8% for later cohorts. The ratio has increased from 14.4% to 21.0% for the recipients who studied medical major. Consequently, there is not much change through time if we consider medical and non-medical majors separately. However, there is a large difference in foreign residency ratios depending on the major choice. Overall, 42.8 % of the recipients who obtained non-medical majors and 15.9 % of the recipients who obtained medical majors reside in foreign countries.



The dates when 669 recipients in foreign countries left Turkey are important for us to understand the trends in the brain drain. At the other end, there are 245 recipients who currently reside in Turkey but have lived abroad for continuously five years. It is also important to know their return dates for us to understand the trend in return migration. We focus on the recent exit and return dates, because exit and return date information is more accurate if the recipient left or returned to Turkey in recent years. Moreover, many recipients would still be in college if we considered earlier years.

Figure 3 gives the number of recipients who return and exit for each year. Unfortunately, there are many more recipients who have exited than those who have returned in recent years. Only two Golden Young People returned, but 20 left in 2017. The cohorts are aging as years pass, and older people are less likely to migrate. Consequently, it is natural that the number of recipients who return in recent years are falling down. However, it is also expected that the number of recipients who exit in recent years should also fall down. The fact that high rate of exits continues in recent years may indicate that brain drain problem is getting worse.



6. Analysis: PhD holders

It is not easy to determine the exit reasons for the medical doctors. However, we are able to determine the exit reasons for Golden Young People who obtained non-medical degrees. 75% of non-medical recipients first exited Turkey for education. Turkish government provides subsidies for undergraduate and PhD programs abroad. It is important to note that many of those who leaves to take education do not return back.

There are 1465 recipients who obtained non-medical degrees. We do not know the majors of 96 recipients, and the remaining 374 recipients obtained medical degrees. Among 1465 non-medical recipients, 506 obtained PhD abroad (34.5%), and 446 recipients obtained their PhD from US universities. Table 2 lists the institutions that at least ten Golden Young People attended to obtain PhD. The list contains many prestigious institutions.

65.3% of the recipients who obtained PhD stayed abroad. The ratio seems high, however, we should note that most PhDs take more than five years. Foreign residency ratio for the non-medical recipients who did not obtain PhD but stayed continuously for more than five years abroad is 76.1%. Therefore, the long stay during PhD studies may be the primary cause for high foreign residency ratio of the PhD holders.

In the previous section, we noted that recipients from cohorts between 1986 and 1995 have a higher foreign residency ratio than recipients cohorts between 1997 and 2004. A possible reason is that the recipients in younger cohorts did not obtain PhD as much as older cohorts. 38.6% of the older cohorts, and only 27.8% of the younger cohorts obtained PhD abroad. There

is not much difference in the foreign residency ratios conditional on PhD holding between cohorts. Therefore, difference in PhD holding ratios explains why brain drain is lower in younger cohorts. But the question of why younger cohorts do not obtain PhD remains unanswered.

Tansel and Güngör (2003) survey a sample of graduate students abroad about their intentions to return back to Turkey. The sample is chosen from alumni pages of universities and later the sample is expanded with snowball technique. Half of their sample indicated that they intended to return back to Turkey, 27.9 percent stated that they did not decide yet and the rest stated that they did not intend to return. Consequently, the rate of return in our sample of PhD holders (34.7%) is much lower than the rate of the graduate students who intended to return in that study.

Table 2. Institutions that at least ten Golden Young People obtained their PhDs

University	# of PhDs
Stanford	36
MIT	24
Georgia Tech	23
Univ Illinois-Urbana Champaign	19
Princeton	18
Ohio State	16
Carnegie Mellon	14
UC Berkeley	14
Univ Maryland	13
Univ Michigan	12
Yale	12
UC San Diego	10

Table 3 lays out the occupations of non-medical recipients who obtained PhD abroad. The ratio of those who work in academia is much higher among those who reside in Turkey. 72.3% of PhD holders work in academia in Turkey, whereas the ratio is just 37.8% among those who reside abroad. This result indicates that the job opportunities for PhD holders are wider abroad. PhD holders in Turkey are restricted to academia, and most academic jobs are concentrated in few universities. Boğazici and Orta Doğu Teknik are the only two public universities that attracted a large number of PhD holders.

Table 3. Occupations of non-medical recipients who obtained PhD abroad

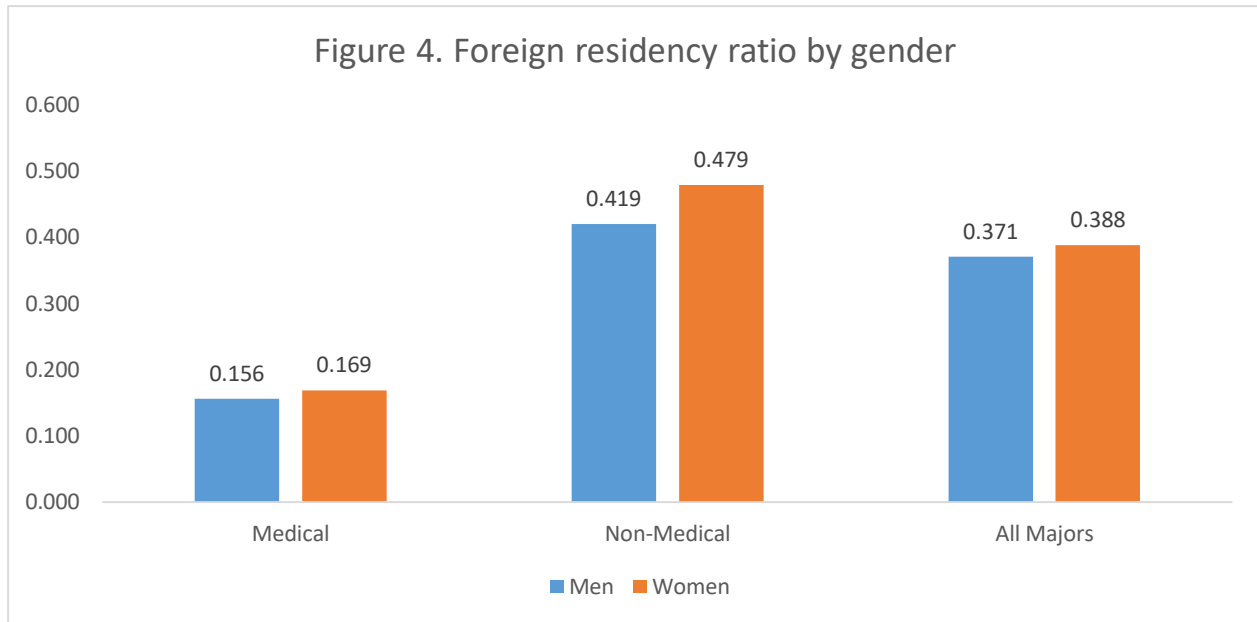
	Turkey	Foreign
Academic	127	124

Non-Academic	47	204
	0.723	0.378
Current jobs at Turkish Universities		
Bilkent	19	
Boğaziçi	19	
Koç	19	
Orta Doğu Teknik	15	
Sabancı	8	
Özyeğin	5	
Other Public	25	
Other Private	17	

7. Analysis: Gender

There is a clear gender bias in the awards. Only 17.8% of the Golden Young People are women. Major choice also differs between Golden Young men and women. 18.5% of men and 29.0% of women chose medical major. Despite the fact that foreign residency ratio among medical doctors are low, foreign residency ratio of women is higher than that of men. In Figure 4, we see that 38.8% of women and 37.1% of men reside in foreign countries. The gender difference is more pronounced for the non-medical majors. 47.9% of women and 41.9% of men who have non-medical majors reside in foreign countries.

We should be cautious about the results because the sample size of Golden Young women is small and there is a higher ratio of Golden Young women with missing information. However, the result is important and the reasons behind the high ratio of foreign residency of these brilliant women should be investigated.



8. Analysis: Turkish Universities

There are only 96 Golden Youth People who have an undergraduate degree from abroad. Some of these recipients took the exams for both domestic and foreign universities when they were senior in high school. Others benefitted from government program that started in 1993 which funded top performers in Turkish college entrance exam to attend a college abroad. We could not find the undergraduate degree information of 200 recipients. The remaining 1,639 recipients obtained their undergraduate degrees from Turkey.

Table 4 lays out the majors of recipients who are educated in Turkey. Over 90 percent of the recipients either chose medical or engineering majors. This concentration represents the choice of the recipients, and some technicality about college admissions examination. The majors are chosen at the time of college examination. The transfers are rare during college education. Before 1999, candidates who wanted to be placed at medical and engineering majors got no extra points for solving social science test, and candidates who wanted to be placed in social science majors got no extra points for solving science test. Since science test had a higher weight, it was impossible for a candidate to become top performer in the test without solving the science test. After 1999, all candidates got extra points for all tests irrespective of the major that they wanted to be placed in. Nevertheless, few top candidates chose social science majors.

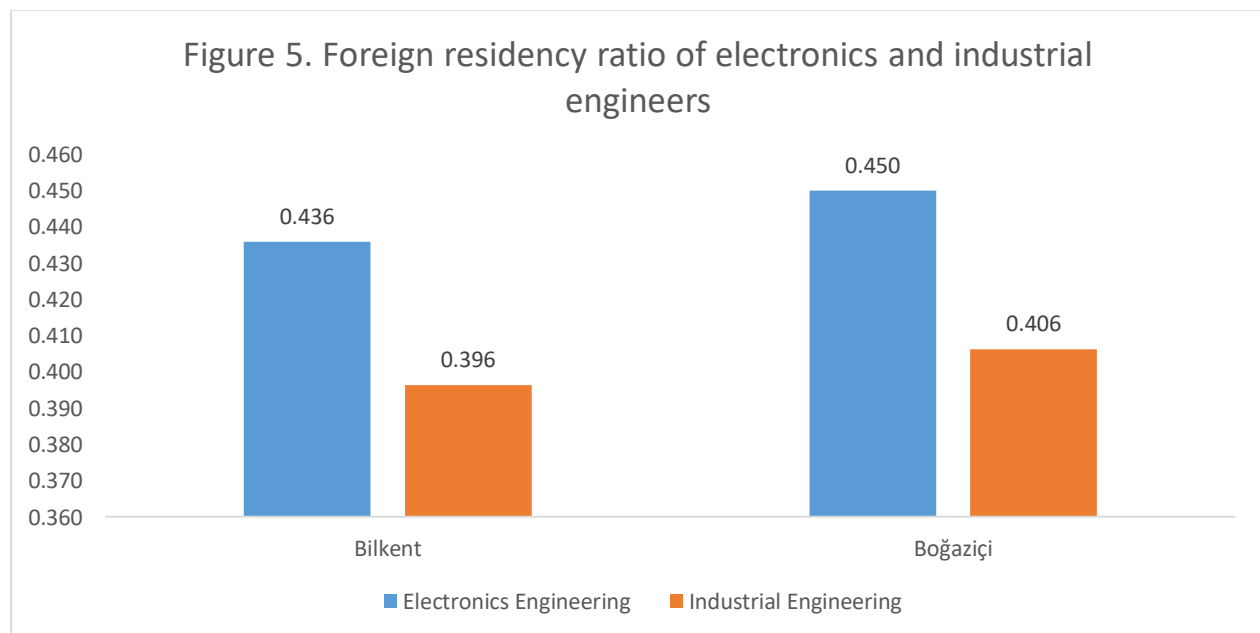
Table 4. Majors of recipients who are educated in Turkey

	# of recipients	Ratio
Social Science	34	0.021
Science	70	0.043

Electronics Engineering	740		
Industrial Engineering	272		
Computer Engineering	117		
Mechanical Engineering	36		
Other Engineering	13		
Engineering		1178	0.719
Medical Sciences		326	0.199
Non-medical, major not known		31	0.019
Total		1639	1.000

Out of the 326 Golden Youth People who studied medicine in Turkey, 208 (63.8%) chose to study at Hacettepe University. There is also high concentration of university choice in non-medical majors. After Bilkent established in 1986, 1081 candidates chose non-medical majors. 895 of them attended either Bilkent or Boğaziçi, and 802 studied either electronics or industrial engineering majors in these universities.

Figure 5 shows the foreign residency ratio of electronics and industrial engineers from Boğaziçi and Bilkent. We see that there is a small difference between universities. Boğaziçi is in Istanbul where there are wide job opportunities, and Bilkent is in Ankara where job opportunities are limited. However, foreign residency rates are not affected by the location of the universities. In fact, Boğaziçi graduates went abroad at a slightly higher rate. In contrast, the difference between the engineering disciplines is more pronounced. Electronics engineers reside in foreign countries at a higher rate than industrial engineers.



9. Analysis: High School.

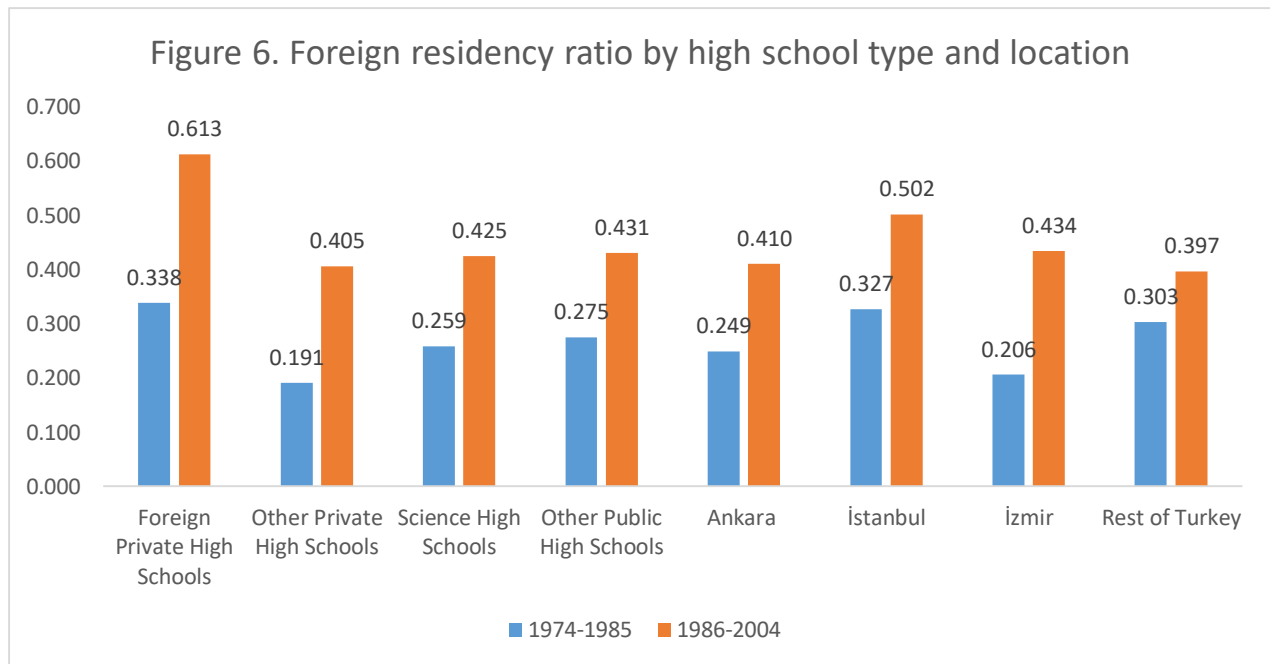
There are few high schools that educate Golden Young People in older cohorts. 76.6% of the recipients between 1974 and 1981 came from just ten high schools. The ratio decreased to 28.5% among recipients between 1997 and 2004. A possible reason for decreasing concentration is that, Turkey established elite public schools all around Turkey so that graduates from many schools are able to become recipients.

High school achievement score (HSAS) is also responsible for decreasing concentration. HSAS measures the candidate's standing in his/her high school. HSAS is added to the college admissions test score to attain final college admissions test score of the candidates. As college admissions tests became easier, the difference in college admission test score among top performers has decreased, and so relative importance of HSAS has increased. Consequently, candidates who were not among the top graduates in their high schools were unable to become top performers in college admissions. Some candidates chose to depart from their prestigious high schools to receive a higher HSAS from another high school. For example, only 30% of prestigious Izmir Science High School students preferred to graduate from this school in 1999.⁸

Figure 6 lays out foreign residency ratio of four types of high schools. Foreign private high schools are established by foreign governments, and known for their excellence in foreign languages. Their graduates usually come from wealthy families, and so they would not face financial problems if they stayed in Turkey. It is interesting to note that their foreign residency ratio is higher than other types of schools. Other private high schools have mostly smaller size, and many of them focus on science rather than languages. Science high schools are special public high schools that attract selective students. There are no significant differences in foreign residency ratio between science high schools, public high schools and other private high schools.

Figure 6 also shows that foreign residency is higher among those who have graduated from a high school in Istanbul. The difference remains even when we compare public high school graduates in different cities. Istanbul is a city that is full of job opportunities for bright brains. Therefore, we are unable to explain why graduates from high schools in Istanbul do not reside in Turkey at a higher rate.

⁸ The number of Izmir Science High School graduates are attained from <http://www.hasankorkmaz-ifl.com/dosyalar/ifl-k12-tr-nostalji/index.html>



10. Conclusion

A very high proportion of Golden Young People do not reside in Turkey. Foreign residency ratio is higher for non-medical majors, women and graduates from high schools in İstanbul. The recipients left Turkey primarily for education. The return rate of PhD holders are low but not lower than those who have stayed in foreign countries for five years.

Brain drain is not a new fact. Golden Young People of all cohorts have chosen to reside in other countries. There is a positive side to this. There is a large stock of brilliant Turks who reside in foreign countries, and may be convinced to return if conditions in Turkey get better.

This study provides some clues of how to convince Turkish brains to come back. Working conditions of medical doctors should be compared to engineers to see why medical doctors stay in Turkey at a much higher rate. PhD holders mostly work in academia in Turkey but not in other countries. Turkey should develop the industries that attract PhD holders. The problem may not be primarily financial as many graduates from foreign private high schools choose to stay abroad.

Turkey has chosen to give generous scholarships to those who want to study abroad. Unfortunately, there are no statistics of how many of those students eventually come back. Anecdotal evidence suggests that many successful students circumvent the rules and stay abroad. In this study, we unravel a large stock of Turkish brains already abroad. Therefore, Turkish government may decide to put more weight on return incentives rather than scholarship programs that add to the stock of Turkish brains who stay abroad.

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