



Understanding Brain Drain and Reverse Brain Drain: A Qualitative Study on the Case of Türkiye

Türkiye Örneğinde Beyin Göçü ve Tersine Beyin Göçünü Anlamak: Nitel Bir Çalışma

Alya TAŞTEKİN¹, Zehra Nil ÇİÇEKÇİOĞLU², Ada TEMİZEL³, Nihan Selin SOYLU KONAK⁴

Geliş Tarihi (Received): 15.03.2025

Kabul Tarihi (Accepted): 02.10.2025

Yayın Tarihi (Published): 30.11.2025

Abstract: Countries experiencing brain drain face serious developmental challenges due to the emigration of highly educated individuals, while recipient countries benefit from an enhanced workforce. This study aimed to explore the socio-psychological mechanisms shaping the migration experiences of individuals who have undergone both brain drain and reverse brain drain, through 13 semi-structured interviews. Drawing on acculturation theory (Berry, 1980) and push-pull dynamics (Lee, 1966), the study examines how cultural adaptation, motivations, and perceived belonging influence migration decisions. Findings revealed that brain drain was mainly driven by limited research opportunities and the desire for international experience, while reverse brain drain was shaped by national loyalty, emotional ties, and discrimination abroad. The study concludes that enhancing scientific infrastructure, improving socio-political conditions, and offering economic incentives are key strategies. It uniquely contributes by addressing both migration directions within a country that is simultaneously a sender and receiver of skilled talent.

Keywords: Brain drain, Reverse brain drain, Acculturation strategies, Push-pull factors, Return incentives.

&

Öz: Yüksek eğitilmiş bireylerin göçü, kaynak ülkelerde ciddi kalkınma sorunlarına yol açarken, alıcı ülkeler nitelikli iş gücünden faydalanmaktadır. Bu çalışma, beyin göçü ve tersine beyin göçü deneyimi olan bireylerin göç kararlarını şekillendiren sosyo-psikolojik mekanizmaları, 13 yarı yapılandırılmış görüşmeyle incelemektedir. Kültürel uyum kuramı (Berry, 1980) ve çekici-itici faktörler yaklaşımı (Lee, 1966) doğrultusunda, bireylerin uyum süreçleri, motivasyonları ve aidiyet algılarının etkisi değerlendirilmiştir. Bulgular, beyin göçünün sınırlı araştırma olanakları ve uluslararası deneyim arzusu; tersine göçün ise ülkeye bağlılık, ailevi-sosyal bağlar ve ayrımcılık deneyimleriyle bağlantılı olduğunu göstermektedir. Çalışma, bilimsel altyapının güçlendirilmesi, sosyo-politik koşulların iyileştirilmesi ve ekonomik teşviklerin dönüşü destekleyebileceğini öne sürmektedir. Bu çalışma, hem göç veren hem de göç alan bir ülke bağlamında göçü iki yönlü inceleyerek özgün bir katkı sunmaktadır.

Anahtar Kelimeler: Beyin göçü, Tersine beyin göçü, Uyum stratejileri, Çekici-itici faktörler, Geri dönüş teşvikleri

Atıf/Cite as: Taştekin, A., Çiçekçioğlu, Z. N., Temizel, A., Soylu Konak, N. S. (2025). Understanding Brain Drain and Reverse Brain Drain: A Qualitative Study on the Case of Türkiye. *Abant Sosyal Bilimler Dergisi*, 25(3), 1249-1265. doi: 10.11616/asbi.1658412

İntihal-Plagiarism/Etik-Ethic: Bu makale, en az iki hakem tarafından incelenmiş ve intihal içermediği, araştırma ve yayın etiğine uyulduğu teyit edilmiştir. / This article has been reviewed by at least two referees and it has been confirmed that it is plagiarism-free and complies with research and publication ethics. <https://dergipark.org.tr/tr/pub/asbi/policy>

Copyright © Published by Bolu Abant İzzet Baysal University, Since 2000 – Bolu

¹ Alya Taştekin, alya.tastekin07@gmail.com.

² Zehra Nil Çiçekçioğlu, zehranilcicekcioglu@gmail.com.

³ Ada Temizel, tmzlada@gmail.com.

⁴ Dr. Öğr. Üyesi, Nihan Selin Soylu Konak, Karadeniz Teknik Üniversitesi, nihanssk@ktu.edu.tr. (Sorumlu Yazar)

1. Introduction

The movement of highly skilled individuals across national borders has become one of the most critical issues shaping global inequalities. The phenomenon, often termed brain drain, reflects both the structural challenges of sending countries and the aspirations of mobile professionals. While economic explanations—such as limited resources, restricted opportunities, or institutional bottlenecks—have long dominated the debate, recent work highlights that migration decisions are equally driven by psychological and cultural dynamics, including belonging, identity, and perceived life satisfaction (Ciumasu, 2010; Kurokawa & Kusakabe, 2025; Wadhwa, 2009). Türkiye provides a compelling case for this dual perspective, as it has historically functioned as both an origin and destination country for highly skilled migration.

Against this backdrop, the present study aims to explore the phenomenon of brain drain (BD) and reverse brain drain (RBD) from a social psychological perspective. In doing so, it seeks to move beyond purely economic or structural accounts and highlight the ways in which migration decisions are shaped by individual-level processes such as acculturation strategies. By framing BD and RBD through this dual lens, the study underscores the importance of integrating psychological insights with structural explanations to develop a more comprehensive understanding of skilled migration dynamics.

Theoretical Background

Brain Drain

The concept of brain drain was first coined in the 1960s by the British Royal Society to describe the emigration of highly skilled individuals from former British colonies to the United Kingdom (Royal Society, 1963). Initially, the phenomenon was examined predominantly through an economic lens, focusing on the loss of investment in human capital for the source countries. Over time, the scope of brain drain studies expanded to include socio-cultural, psychological, and policy-related dimensions (Ciumasu, 2010; Wadhwa, 2009). Recent analyses challenge the optimistic narrative of brain circulation by showing that many low- and middle-income countries continue to suffer significant net losses—particularly of their most productive scientists—to the Global North, indicating that structural inequalities in global talent flows persist (Herman et al., 2024). Brain drain can be caused by economic difficulties, scientific and academic bottlenecks and/or low scientific and technological conditions in the country of origin. In the context of Türkiye, studies show that while economic incentives abroad remain central drivers, family ties, bursary obligations, and pre-departure intentions also play a critical role in shaping the return decisions of highly skilled migrants (Güngör & Tansel, 2011).

There are push and pull factors that are referred to as the causes of brain drain. Push factors are the reasons that will cause people to leave their country of origin. Pull factors, on the other hand, are the appealing features found in the country where people will make a brain drain to (Lee, 1966; IOM, 2005). While this dichotomy offers a useful starting point, recent perspectives emphasize that return migration is not only shaped by structural incentives, but also by a sense of belonging, social commitment, and moral responsibility (Kurokawa & Kusakabe, 2025). Looking at the psychological side of brain drain apart from the economy, it is observed that there is a relationship between brain drain and happiness. People have been in search of happiness both individually and collectively. For this reason, beyond material considerations, personal variables such as life satisfaction and the pursuit of happiness strongly influence the decision to migrate – skilled individuals unhappy with local conditions are more likely to seek a better life elsewhere (Ateş & Köksal, 2021).

Furthermore, recent global-scale analyses suggest that governance and institutional quality significantly moderate brain drain trajectories. For example, Vega-Muñoz, González-Gómez-del-Miño, and Contreras-Barraza (2025) analyze panel data from 178 countries (2006–2022) and find that political stability, rule of law, and quality of public services are strong negative predictors of skilled emigration. Likewise, the “intellectual migration analytics” framework proposed by Li (2023) emphasizes the interplay between individual agency and structural constraints, arguing that skilled mobility decisions occur within institutional contexts that shape opportunities, uncertainties, and network dynamics. In the domain of

health professions, Abou Hashish et al. (2020) provide evidence from Egypt that workplace environment, governance, and non-economic motivators play a crucial role in nurses' decisions to emigrate, beyond salary alone. Taken together, these findings indicate that beyond economic drivers, structural governance conditions and psychosocial factors jointly shape skilled migration decisions — a perspective that aligns with the following discussion on acculturation and cultural adaptation.

Acculturation and Cultural Adaptation

When culturally distinct groups come into continuous contact, changes occur in the original cultural patterns of one or both groups. This process is known as acculturation (Berry, 1980). John Berry's influential model identifies four acculturation strategies based on an individual's orientation toward the host and heritage cultures: (1) assimilation—abandoning one's original culture and fully adopting the host culture; (2) separation—maintaining one's home culture and rejecting the host culture; (3) integration—adopting the host culture while retaining one's heritage culture (often considered biculturalism); and (4) marginalization—rejecting both the home and host cultures. These strategies are not static traits but choices shaped by personal preference and context. Research has shown that integration is often associated with the best adaptive outcomes, as it allows individuals to benefit from the new culture without losing support from their culture of origin (Nguyen & Benet-Martínez, 2013). In contrast, marginalization is generally linked to the poorest outcomes (e.g., isolation, stress).

It is important to note that acculturation is a dynamic, two-dimensional process: one can simultaneously seek engagement with the new society and value one's heritage. Individuals may even use different strategies in different domains of life—for example, someone might integrate publicly (adapting to mainstream norms at work or school) while separating privately (speaking their native language and practicing traditions at home; Berry, 1997).

Over the decades, the acculturation framework has been refined and critiqued. Later studies stress that there is enormous variation in how people acculturate and how well they adapt—outcomes depend on factors like personality, social support, and host receptiveness (Ward & Kennedy, 1999). Some scholars have called for more nuanced, multidimensional models. Rather than a single continuum from heritage to host culture, modern approaches view acculturation in terms of multiple domains (e.g., behaviors, values, identity). For instance, Schwartz et al. (2010) reconceptualized acculturation as the intersection of heritage-culture and receiving-culture practices, values, and identifications.

Current research also emphasizes the broader context of acculturation, examining how societal factors (e.g., discrimination, immigration policies, community resources) influence the acculturation process and its outcomes (Ward & Geeraert, 2016). In summary, cultural adaptation is a complex, ongoing negotiation—successful acculturation can take many forms beyond simple assimilation, and it involves both individual agency and structural conditions.

Acculturation & Brain Drain & Reverse Brain Drain

Abovementioned acculturation strategies have a big impact on brain drain (BD) and reverse brain drain (RBD) decisions. In a study conducted with Chinese individuals who had settled in Canada, it appears that successfully adopting integration strategies significantly reduces the likelihood of their intention to return (Fu, 2013). Studies have found that migrants who achieve deeper sociocultural integration into the host country (e.g., feeling at home in the local culture) are less likely to intend to return home. In a study of African immigrants in Europe, for example, those who felt culturally integrated had lower return migration intentions, whereas maintaining strong economic or familial ties to home had a more ambiguous effect (de Haas & Fokkema, 2011). This suggests that being comfortable in a new society can reduce the “pull” of returning. At the same time, maintaining transnational connections—such as visiting home frequently or engaging with the diaspora—does not necessarily deter permanent return; in some cases, these ties facilitate re-integration by keeping migrants emotionally and professionally linked to their country of origin (Cassarino, 2004).

Türkiye is both an immigrant and an emigrant country, and brain drain constitutes a significant component of its current migration dynamics. Since the 1960s, migration in Türkiye has helped alleviate the pressure of unemployment and provided foreign currency inflows; however, the loss of skilled labor continues to pose a serious problem (Bakırtaş & Kandemir, 2010). While recent data indicate a promising trend—showing that 41.9% of highly skilled Turkish migrants who went abroad between 2010 and 2022 have returned, suggesting a rise in brain circulation (Metin, 2025)—Türkiye continues to struggle with outbound brain drain. Once predominantly a sender of skilled migrants, Türkiye has recently sought to position itself as a receiver through strategic plans and policy incentives. Nevertheless, despite these efforts, the country has not yet succeeded in curbing the emigration of its highly educated population (Yılmaz, 2019). Given that migration decisions are shaped not only by economic factors but also by social and psychological dynamics, it is crucial to investigate what drives these individuals away from Türkiye or attracts them abroad (Bakırtaş & Kandemir, 2010). The main drivers of Türkiye's brain drain include the search for a freer and more tolerant lifestyle, better research conditions, higher salaries, academic freedom within a democratic and less bureaucratic environment, and a reaction to low wages, unemployment, and unjust systems in Türkiye (Tanrısevdi et al, 2019). Correlation analysis among university students in Türkiye revealed a positive and significant relationship between future anxiety and brain drain attitudes (Aydın et al., 2025). In particular, research suggests that beyond income levels, psychological variables play a substantial role in determining life satisfaction and thus influence migration decisions (Ateş & Köksal, 2021).

Reverse brain drain can be defined as the return of individuals who have migrated abroad as brain drainers, to their countries of origin, bringing back the experiences they have acquired. It is also referred to as the return of qualified and skilled labor to their country of origin (İsmail et al., 2014; Wadhwa, 2009). The reasons for reverse brain drain are the same as the push and pull factors mentioned as the reasons for brain drain. However, there are different factors that affect the decision to return. Factors such as lack of relative network in the destination country, family presence in the country of origin, lack of language skills, lack of adequate socialization might affect the decision of RBD (Ho et al., 2018; Sunata, 2014). In addition to these personal and social factors, growing evidence suggests that organisational dynamics—such as career development systems, HR practices, and work-life balance—significantly shape both migration and return decisions, especially among younger professionals (Lygerou, 2025). Recent qualitative work also underlines that identity-related processes—such as belonging and moral responsibility—intersect with institutional dynamics to shape highly skilled individuals' mobility choices (Kurokawa & Kusakabe, 2025).

As a successful case of promoting RBD, China has pursued many policies to encourage RBD of its graduates since the 1990s (Zweig, 2006). The decrease in the number of Chinese brain drainers is the best indicator of the effectiveness of China's policies (Yan & Berliner, 2011). The most common pull factors in China, in order of importance are career, family and friends, quality of life and cultural identity (Guo & Iredale, 2003; Hao & Welch 2012). China's pull factors in the economic aspects are better career and professional opportunities, job offers, economic growth, access to international markets, opportunities for entrepreneurship, implementation of new technologies and lower costs compared to foreign countries. China's push factors include limited political freedom, restricted personal freedoms and the government's attitude towards the educated population (Alberts & Hazen 2005; Zweig 2006). Complementary studies also note that policies fostering professional advancement, improved research infrastructure, and quality of life have been critical to China's success in reversing brain drain (Zweig & Wang, 2013; Jonkers & Tijssen, 2008).

Similar to China, RBD movements in Türkiye have been aimed to gain momentum in recent years. In Türkiye, some institutions (such as TUBITAK) have incentive programs to create plans to encourage reverse brain drain for individuals, in addition to their own RBD incentive programs. In line with these programs, within the scope of incentives, opportunities such as financial aid, laboratory support and financial opportunities will be provided to those who will perform reverse brain drain. This increases the mobility of those who undergo brain drain. Economic, social and scientific incentives are the most important factors for the individuals who are considering to be engaged in reverse brain drain movements to Türkiye. In the event of a reverse brain drain, well-educated brains will possibly return to the country

and might play a major role in the development of the country (Çalış, 2019). However, as emphasized in recent analyses, economic incentives alone may not suffice unless coupled with secure working environments, structured reintegration programs, and supportive organizational cultures (Lygerou, 2025).

In underdeveloped or developing countries where brain drain is high, many policies are implemented to reverse this migration. In this context, it is possible to mention the case of India. In India, industrial development started to accelerate with the patent law enacted in 1972 and the increase in state investments. In this process, technological capacity increased due to practices such as automatic licensing and patent periods being shortened. Following the radical changes in the subsequent years, migration to cities such as Delhi and Mumbai increased (Kale & Little, 2007).

Upon scrutiny of Türkiye, there are many policies carried out by private institutions and public-private partnerships to encourage reverse brain drain to Türkiye (e.g. The Brain Drain and Restoration Project, the ASELSAN Reverse Brain Drain Project & TUBITAK 2232-Returning Homeland). Reverse brain drain is an important issue that has been discussed in 5-year development plans since 1963 in Türkiye. These plans aim to reduce brain drain and encourage reverse brain drain by providing incentives for Turkish researchers living abroad to return to Türkiye (Çalış, 2019; Köksal, 2021).

Aim of the Research

In light of the abovementioned findings, the aim of this study is to understand the social and psychological mechanisms at play in the processes of brain drain and reverse brain drain. From a social psychological perspective, this study draws on the concepts of acculturation (Berry, 1980), belonging, and moral responsibility to examine how individuals make meaning of their migration and return experiences. By focusing on returnees' subjective motivations and perceived obligations toward their home country, the study integrates structural and psychological explanations of brain drain and reverse brain drain. This research seeks to explore the factors that drive highly skilled individuals to leave their home countries in search of better opportunities abroad, as well as the motivations that encourage them to return. By examining the underlying social and psychological dynamics, the study aims to provide insights into how personal, societal, and cultural influences shape these complex migration decisions.

2. Method

Participants

This study included 7 participants (3 women) who had engaged in brain drain and 6 participants (3 women) who had undergone reverse brain drain. Participants were reached by the snowball sampling method. The age range of the participants was 31-64 ($X_{age} = 38.31$, $SD = 9.05$). The educational level of the participants was bachelor's degree ($n=1$), master's degree ($n=1$) and doctorate ($n=11$). The countries they migrated to were mostly European countries such as Germany, Spain and Norway ($n=10$), and also the United States of America ($n=3$), the United Arab Emirates ($n=1$) and Kazakhstan ($n=1$). Detailed information regarding the countries to which participants migrated and education level can be found in Table 1.

Table 1. Overview of Participants

Code	Gender	Age	Country Migrated To	Education Level	Profession	Duration Abroad
RBD1	F	33	Sweden	Bachelor's Degree	Electrical and Electronics Engineering	4 years
RBD2	M	64	Kazakhstan	Ph.D.	Business Administration	5 years
RBD3	M	49	Germany	Ph.D.	Aerospace Engineer	15 years

RBD4	F	35	Italy, Spain, UK, USA	Ph.D.	Electrical and Electronics Engineering	8 years
RBD5	F	33	Germany, USA	Ph.D.	Molecular Biology and Genetics	4 years
RBD6	M	38	Germany, Norway	Ph.D.	Metallurgy	10 years
BD7	F	35	Austria	Ph.D.	Nuclear Science	5 years
BD8	F	34	UK	Ph.D.	Psychology	10 years
BD9	F	36	UAE	Master's degree	Medicine	1 year
BD10	M	31	Germany	Ph.D.	Psychology	3 years
BD11	M	42	Spain	Ph.D.	Nuclear Science	3 years
BD12	M	33	Germany	Ph.D.	Physics	5 years
BD13	M	35	USA	Ph.D.	Nuclear Science	2 years

Procedure

Ethical approval for the study was obtained from XXX University Scientific Research and Ethics Committee (Protocol No: 2166) and all participants approved the informed consent form before the interview began. The data of the study were collected in November-December 2023. After collecting socio-demographic information and details about their migration destinations, we conducted a semi-structured interview that covered the factors influencing their decision to migrate abroad, the status of their adaptation to the new culture and their positive/negative experiences in this context, their intentions to return and the potential incentives for those who experienced BD; the factors influencing their decision to return and their reflections on these decisions for those who experienced RBD. Semi-structured interviews were conducted with the participants through online meetings lasting approximately 30 minutes.

Analytical Approach

First, all interview recordings were carefully transcribed to ensure the accuracy and integrity of the data. The analysis followed a 6-stage approach as outlined by Braun and Clarke (2006) for thematic analysis. This method was deemed appropriate for its theoretical flexibility and its ability to capture rich, nuanced insights from participants' subjective accounts. In the initial stage, all transcripts were thoroughly read multiple times from beginning to end, allowing the researchers to immerse themselves in the data and develop a deep understanding of the content. This familiarization stage was crucial for identifying any emerging patterns or nuances. In the second stage, the researchers generated initial codes by systematically examining the data line by line. These codes served as concise labels capturing key elements relevant to the research questions. In the third stage, the initial codes were organized and clustered under broader initial themes, reflecting patterns across the dataset. During these first three stages, four researchers (authors) worked independently to minimize bias and enhance the robustness of the analysis. The reliability of the coding process was confirmed with an intraclass correlation coefficient of 0.99, calculated using SPSS 20.0, indicating a high level of agreement among the researchers. In the fourth stage, all four researchers collaborated to review the initial themes, refining and merging them where necessary. This collaborative review ensured that the final themes were coherent and accurately represented the data. In the fifth stage,

the researchers carefully defined and named each theme, ensuring that each theme maintained internal homogeneity while remaining distinct from other themes. Finally, in the last stage, the finalized themes were reported with appropriate examples, providing clear evidence to support the identified patterns.

3. Results

The thematic analysis of the data obtained from our research was conducted using an inductive approach. The resulting themes are explained below. For each main category (e.g., adaptation to host culture), the percentage of each theme reflects the proportion of participants who mentioned that theme among those who provided relevant responses to that specific category. Participants who engaged in reverse brain drain (RBD) and those who engaged in brain drain (BD) were assigned specific codes. These codes, along with participant numbers, are used in the sections where participants' statements are presented.

Reasons for Brain Drain

A total of 3 themes were identified under the title of "Reasons for Brain Drain". The ratio of the theme "Gaining International Experience" is 57%, the ratio of the theme "Limitation of Scientific Research Opportunities" is 36%, and the ratio of the theme "Physical Security" is 7%.

Gaining International Experience:

As a result of the interviews, it was observed that gaining international experience is the most important factor encouraging brain drain. This theme includes the reasons of receiving education from different cultures, observing research abroad and expanding vision. Participants' statements on this theme are as follows:

RBD2: "I went abroad to broaden and expand my vision, plus, being a banker, I went abroad to find a place in the international banking community and increase my experience."

BD12: "I am doing experimental physics. Unfortunately, while doing experimental physics, we constantly need a device or measurement system, and of course these are not very cheap things, so since the budgets of universities in Türkiye are limited, we had to go abroad first to find some opportunities. This was my biggest motivation, of course. I don't want to say good or bad just like school, but it is always important to visit different cultures and different laboratories while doing scientific research, this way, how can I say, you can develop your vision better. I can say that these two are the main factors regarding my decision to go abroad."

Limitation of Scientific Research Opportunities:

It was observed that 36% of the participants mentioned limited scientific research opportunities as the reason for brain drain. The main motivation for brain drain was the lack of positions for jobs and limited research opportunities at universities. Participants stated these reasons in this way:

BD10: "Mostly for professional reasons. I wanted to work at a better university, with better facilities. I wanted to collaborate with international research, where researchers are located. So I wanted to work in Europe, in the center of Europe, at one of the leading universities in my field. That was my main motivation."

BD11: "So, I can say that my field in Türkiye is very limited on this subject, the centers where research is conducted, that's why."

BD7: "Of course, there are some difficulties in our country when I am looking for an academic job and a position near the end of my doctorate. It is difficult to find open positions, especially in our field of work. At that time, I was informed by a friend that this company abroad was recruiting workers. That's how I applied and was accepted."

Physical Safety:

The participants who mentioned migration due to physical safety constitutes 7% of the reasons for brain drain. Even though it was expressed by only one participant, we considered this statement as a theme due to the importance and priority of the issue. It addresses a very fundamental matter concerning people's safety. The participant stated that she lost hope for her safety and the future of her profession:

BD9: "Because I lost hope for security and the future of my profession. I came here because I lost hope for the future of my job and doing it in Türkiye ... In other words, if people stop beating doctors, if people stop killing doctors, and if a safe environment is provided, it will positively affect my decision to return."

Adaptation to Host Culture

Under the title "Adaptation to the Host Culture," four themes were identified. The theme "Characteristics of Culture" was prevalent, comprising 59% of the responses. The "Language Barrier" theme accounted for 16%, "Relations with Other Immigrant Cultures" with 14%, followed by "Geographical Conditions" at 9%. Lastly, the theme "Experience of Discrimination" represented 2% of the responses.

Characteristics of Culture:

Under the topic of adaptation to the host country, the most prominent theme with a 59% ratio was the characteristics of the culture. Participants expressed their positive and negative experiences abroad and compared them with Türkiye. They mostly emphasized cultural differences such as respect, helpfulness and culinary.

RBD1: "And people are very polite and judgment is minimal. You know, there is very little judgment according to certain things, so when I compare it to Türkiye, this was something I experienced more positively. Sometimes the difference in culture, the fact that we come from a warmer culture and they have a more cold-blooded structure, sometimes had a negative impact."

BD11: "I can say that my adaptation here was easier because there are cultures closer to us and the people of the Mediterranean countries are friendly."

RBD2: "To give an example, weddings, deaths, then birthdays and some calendar days, let's say New Year's Eve, are celebrated very heavily and given much attention compared to Türkiye, I mean especially funerals and weddings. If you don't attend, it won't happen. In Türkiye, for example, you cannot see this." I am saying this as an example, the family circle participates in it, but it is not a family there, lineages beyond the dynasty participate in these ceremonies, and these ceremonies do not last a short time, they last a long time, and there are some cultural differences like this. Most people have problems with the food culture in the countries they visit, and this is normal because their tastes are different. "It is a taste acquired from childhood and infancy, so many people may have problems with this issue due to reasons such as different cooking techniques and different spice usage in the country you visit. As I said, these are things that can be overcome, provided that they do not act prejudiced."

Language Barrier:

In addition to the participants who considered the language barrier as one of the difficulties they experienced, there were also participants who stated that they did not encounter any difficulties due to the universality of English. It was pointed out that the language barrier makes people lonely in some places and makes it difficult to adapt to intellectual activities such as theatre, cinema and operas:

BD12: "Language is also a factor. I mean, in the end, even though the language is English, when I speak in daily life or you know, when I am talking to friends outside of school or during a meal, I mean, the fact that I don't know German very well also makes a difference there. This is about me, but I can say that this is what happens in a foreign language."

RBD6: "No matter what happens abroad, when it is not a native language, there is a decrease in intellectual capacities and atrophy. There is a decrease in intellectual capacity, from the books he reads to the theatre he attends, the opera he attends, and the tweets he can follow on Twitter. That's why I see it as a bit of a loss of efficiency for very well-educated people to operate abroad."

Geographical Conditions:

When we look at the statements of the participants who expressed their thoughts about geographical features, it is possible to observe both positive and negative aspects:

RBD6: "The difficult ones were the weather-related ones. The average rainfall in the city where I stayed was 273 days according to Wikipedia. This could go up to 310-315 days a year. So it is a completely gray and rainy environment where the traffic lights are covered with moss. This is a serious problem. You have to be born there where life is much more limited, where you see almost no sun for 3 months or 4 months in winter, where you are constantly trying to walk on ice, so you have to be born there to adapt there. Very small cities, very small villages. Travel is limited because it is very isolated, very big. When you travel 500 km you don't see anything different. You have to travel 1000 km to see different districts, everything is the same."

RBD1: "My positive experiences... Actually the nature was very beautiful. You know, to spend time alone. Sweden is a country where you can easily adapt in that regard. You can go on long nature walks like this."

Relations with Other Immigrant Cultures:

Under the title of relations with other immigrant cultures, participants stated that they found their relations with migrant communities healthier than their relations with local people and gave examples of their experiences:

BD13: "I mean, there really is a friendlier communication among the immigrants. Because I guess people understand each other better. Being away from family and loved ones. It makes it easier for us to empathize with each other. But this does not mean that. There is no antipathy towards migrants here. In the country I am in right now, yes, I think this is something related to the person, but yes, in general, I can say that there is a warmer communication between migrants."

Experience of Discrimination:

The experience of discrimination was the theme with the lowest frequency among the themes with a ratio of 2%. One participant stated that he observed discrimination in promotions at work:

RBD3: "Of course, we have some experiences of discrimination here. But when you stay abroad for a long time, maybe you feel it when you know that culture. Especially when you get to senior positions in the foreign country you are in, it starts to become very clear that there is discrimination. But there is also a natural side to this discrimination. People come to those high positions within a certain network in the countries they live in."

Reasons for Reverse Brain Drain

Three themes were identified under the title of "Reasons for Reverse Brain Drain". The ratio of the theme "Responsibilities towards the Country" is 42%, the ratio of the theme "Longing for Social-Family Connections" is 33%, and the ratio of the theme "Discrimination" is 25%.

Responsibilities towards the Homeland:

Responsibilities towards the homeland, the predominant theme among the headings, was the most influential factor in the participants' decision to return. Participants supported their responsibilities towards the land of their birth with examples in their statements:

RBD1: "You know, since I grew up here in this country, I wanted to contribute to this country; instead of just going abroad and continuing my life there, I wanted to go and stay for a while and see and observe the positive and positive aspects there and then bring it back to my own country and make a contribution to my own country."

RBD2: "We were born and raised in Türkiye, we were educated in this country, we used the opportunities of this country, so we can go abroad, but the values we serve, the contributions, the vision are many, I think we need to go and increase the added value in the country."

Longing for Social-Family Connections:

Participants stated that emotional and relational factors such as family and friendship were effective in their RBD decisions:

RBD1: "The first factor was of course the family, although I made good friends there, but the fact that my family lives here was the first factor in my decision to return."

RBD5: "So, family reasons of course. My partner..."

Discrimination:

The theme of discrimination, which is similar to the theme of language barrier in some places, also appears to be one of the challenges faced as a migrant and one of the factors influencing the decision to RBD:

RBD6: "In order to be an academician, you need to be in a country where you have a good command of your mother tongue, otherwise you will be at the background. For me, this is Germany, I can say German, English and Turkish speaking countries. But this challenge is a serious difficulty both in Germany and in English-speaking countries. Because when you don't speak your mother tongue, your persuasiveness, I mean you are an immigrant after all, you are less likely to be taken seriously. If you are someone who does not have serious goals, it doesn't make much difference when you say, "I got my eyes on my salary.""

RBD3: "In the academic system in Germany, after completing your doctorate, you have to become a professor at some point. I was making a lot of applications there too. I saw how strong the discrimination and the secret network there was in these applications. There is no such thing as a secret network, an organization behind it, but I have learned that when a position opens, it is approximately clear from the beginning who will come. Therefore, of course, this pushed me to seek other pursuits. I already had plans to come to Türkiye when I left. There is even an article I wrote while I was there. What will I do, how will I come to Türkiye?

Potential Incentives for Reverse Brain Drain

Three distinct themes have been delineated concerning "Potential Incentives for Reverse Brain Drain" These include the prominence of "Provision of Scientific Research Opportunities" accounting for 52% of the identified factors, followed by "Socio-political Conditions of the Country" constituting 24%, and "Economic Factors" similarly contributing 24%.

Provision of Scientific Research Opportunities:

The reason why the provision of scientific research opportunities is the most prominent theme for potential incentives is that a significant number of the participants stated the lack of scientific opportunities as their primary reason for brain drain. Inadequate scientific research opportunities were also found in the statements of participants who migrated abroad for acquiring international experience. The participants stated their suggestions for research opportunities as follows:

BD13: "Because the reason we are here is not only because we earn better money here. Because we also need to be able to provide these conditions in a laboratory environment in Türkiye. So, if there is an incentive in such a total way, for example, if they can provide a financial support that can offer that laboratory equipment to a lecturer upon his/her return, not just an increase in salary, it will be more attractive."

BD10: "The academic system of the university system in Türkiye needs to change significantly. A free research environment is what I mean by these researchers, not only professors and doctors, but also graduate students and doctoral students. This freedom is not only a political freedom but also a freedom regarding workload. Because most of my colleagues in Türkiye spend 60-70% of their time teaching. He works as a private school teacher. But we believe that 60-70% of the academy should be research. If the academic system in Türkiye is research-based, if it can catch up with international knowledge production mechanisms, and if it starts to conduct research like the research done here, these research can also affect

the university economically. I might consider it if money comes into the universities, but other than that, I don't think so."

Sociopolitical Conditions of the Country:

In the theme of socio-political conditions, participants emphasized that social life should be improved, and population planning should be balanced. According to interviews, one of the significant determinants affecting people's decisions to return is the disadvantages brought by high population density:

BD7: "Maybe if the conditions of the country, the conditions of the country, the living conditions in the country, also in terms of social life, if it comes to better conditions, why not?"

BD10: "Maybe the decision to migrate can also be influenced socially by population density. There is a very unbalanced population density in Türkiye's big cities and the ones with universities Istanbul, Izmir, Ankara, Antalya are some of the examples. Compared to other cities, thousands or even millions of people live there. But the European cities here are designed in the opposite way. They are very low population cities. Not many people live here. With the increase in the number of people; different problems such as chaos, noise, traffic also increase. I am here because I prefer a quieter life. If the population distribution in Türkiye becomes a little more regular, for example, instead of 17 million people living in Istanbul, 5 million people live in Istanbul and the rest moves to other cities or if this can be organized in some way, I might consider it. It is one of the things that will motivate me."

Economic Factors:

Along with socio-political factors, economic factors, with a frequency of 24%, was a theme that received less attention than the lack of scientific opportunities. While most participants emphasized that economic factors came after scientific research factors, some participants stated that economic conditions were the most important incentive for return:

BD8: "So Türkiye needs to change and progress a lot economically, politically and socially."

BD12: "It's a bit about what universities offer you, because after a certain point we need a laboratory and we need money to set up the laboratory, so we sit down and talk to whoever has the money, the plans are usually like this."

4. Discussion and Conclusion

This study examined the factors influencing brain drain (BD) and reverse brain drain (RBD) decisions within the context of Türkiye. The interviews revealed that the predominant driver of brain drain is the scarcity of scientific research opportunities in the country of origin. This finding aligns with previous literature, suggesting that inadequate research environments significantly deter highly skilled individuals from remaining in their home countries. Offering sufficient scientific research opportunities emerges as the most crucial incentive for reversing brain drain to Türkiye. This aligns with findings by Docquier, & Rapoport (2012), who show that enhancing human capital formation and creating conducive research environments are key in mitigating brain drain and fostering brain gain effects.

Köksal and Ateş (2021) proposed measures to encourage reverse brain drain specifically among academics, focusing on enhancing technological infrastructure in universities, strengthening laboratory facilities, and improving access to academic resources. While their study was limited to academic professionals, the present study expands this scope by targeting a broader population, including participants from diverse professional backgrounds. Despite the wider focus, our findings align with their recommendations, as participants in this study also identified the establishment of laboratories and support for students as key incentives for reversing brain drain. These insights suggest that increasing government support for laboratory infrastructure remains a critical factor in encouraging reverse brain drain across a variety of professions. Indeed, Docquier & Rapoport (2012) also emphasized that structural improvements in the research sector can enhance the absorptive capacity of sending countries, making return migration more attractive, particularly for scientists seeking substantive intellectual engagement.

Examining statistics and academic publications on brain drain from Türkiye, Öneri (2019) mentioned that another reason for brain drain is the insecurity caused by political and economic instability. The participants we interviewed also stated that the current socio-political environment of the country plays an important role in brain drain as it affects their quality of life. In line with this, concerns about physical safety also emerged in our findings: although raised by a smaller proportion of participants (7%), the issue was emphasized as a fundamental determinant of migration decisions. This resonates with Mutlu et al. (2024), who demonstrated that fear of violence significantly shapes health professionals' migration intentions in Türkiye. Furthermore, from a social psychological perspective, lower perceived quality of life—particularly regarding personal security—can severely reduce place attachment and increase intentions to migrate (Fard & Paydar, 2024; Azevedo et al., 2013). Both our data and theirs suggest that beyond economic and infrastructural concerns, ensuring personal safety and protection from workplace violence constitutes a critical prerequisite for reversing brain drain.

In his thesis, Sağbaş (2009) asserted that improving conditions for scientific research is an essential policy for encouraging reverse brain drain, particularly by addressing issues related to wages and salaries. Rüzgar (2020) further demonstrated that economic factors are the most significant drivers of brain drain. The participants in this study acknowledged the impact of economic factors on their decision to migrate. However, they emphasized that economic incentives alone would not suffice; instead, they found scientific research opportunities to be more compelling. A distinctive contribution of the current study is the suggestion that rather than focusing exclusively on economic factors, fostering the scientific and technological sectors may yield more effective results, thereby indirectly addressing economic concerns as a consequence. This resonates with Docquier & Rapoport's (2007) framework, where they note that skilled emigration may spur return when the home country develops the institutional capacity to recognize and utilize the returnees' expertise.

Both Yılmaz (2019) and Aytaç (2019) also concluded that the push and pull factors affecting reverse brain drain are consistent across many countries, not limited to Türkiye. Push factors such as low wages, restricted freedom of expression, lack of political freedom, uncertainty about the future, and limited job opportunities were identified. In contrast, pull factors included better educational prospects, smoother career advancement, easier access to advanced technology, and higher living standards. In the study by Güngör and Tansel (2014), it was reported that, alongside economic factors, familial considerations play a substantial role in brain drain decisions. Similar findings emerged in the current study, as participants indicated that their families hold significant importance in their social lives and strongly influence their decisions regarding RBD. In social psychology, this aligns with theories of place attachment and social identity (Tajfel & Turner, 1979), where returning to one's in-group (homeland) serves both emotional and identity-restorative functions. In a similar vein, recent research emphasized that return and contribution motivations are deeply rooted in individuals' sense of social responsibility and belonging to their home country, calling for more integrated frameworks beyond traditional push-pull models (Kurokawa & Kusakabe, 2025).

The empirical insights of the current study resonate with the Vega-Muñoz et al. (2025) findings: structural governance variables such as public service quality and political stability appear critically linked to skilled emigration. Our participants' emphasis on "sociopolitical conditions" as a pull/incentive factor mirrors their macro-level result that institutional quality moderates brain drain flows. Moreover, Li's (2023) framework would interpret our "duty to country" and "responsibility" themes as expressions of networked agency within structural constraints; our qualitative data reflects how participants negotiate personal values and institutional opportunities, consistent with intellectual migration analytics. The case of nursing migration in Egypt (Abou Hashish et al., 2020) similarly shows that non-monetary factors like work environment, governance, and professional support shape emigration decisions. That study's conclusion that improving governance and institutional support may reduce brain drain parallels our finding that research infrastructure and systemic support matter more than mere pay increases. In other words, by situating our qualitative findings within these broader structural and agency-aware literatures, our study

underscores that Türkiye's brain drain / return dynamics cannot be fully addressed by economic incentives alone — institutional quality, governance, and symbolic ties are equally pivotal.

In line with our findings and previous research from Türkiye, brain drain appears to be less a matter of individual choice and more a reflection of organisational dynamics. Recent evidence further suggests that organisational-level interventions — particularly in human resources — play a critical role in reversing brain drain by fostering supportive workplace environments that enhance retention and encourage repatriation (Lygerou, 2025). In line with this, Çalış (2019) emphasized that returnees are more likely to repatriate when comprehensive institutional support — especially in the form of structured reintegration programs — is available, which facilitates smoother transitions into professional and academic environments upon return. These insights underscore the need for a coordinated effort involving both private sector organizations and national policy frameworks to address the structural causes of brain drain and promote sustainable talent retention. From a social psychological angle, such organizational support can satisfy individuals' needs for competence, relatedness, and autonomy (Deci & Ryan, 2000), thereby further incentivizing return.

Previous studies on reverse brain drain in Türkiye have largely relied on macro-level analyses or quantitative designs that foreground economic indicators and policy instruments (e.g., Aytaç, 2019; Çalış, 2019). By contrast, this study contributes to the literature by employing a qualitative, social psychological approach that centers on returnees' subjective interpretations of duty, identity, and belonging. This person-centered lens not only reveals nuanced motivations that are often obscured in survey-based data, but also enables the integration of emotional and cultural dimensions into the understanding of skilled migration trajectories. Such an approach aligns with calls in migration psychology to valorize narrative-based methodologies that capture identity negotiation as central to mobility decisions (Cohen & Kassan, 2018).

In the broader context of migration studies, the role of cultural adaptation in shaping migration decisions has been a focal point of research. Fu (2014) emphasized that acculturation strategies play a crucial role in brain drain dynamics, suggesting that individuals' cultural identities significantly influence their ability to adapt to the host country, which in turn impacts their decisions to either remain abroad or return to their home country. In line with Fu's findings, the present study also identified variations in participants' adaptation processes, with those more engaged in acculturation strategies showing distinct differences in their reverse brain drain (RBD) decisions. Echoing this, although many Turkish professionals abroad experience strong hesitations about returning, they often keep the possibility of repatriation open in the long term, demonstrating the ambivalence that characterizes RBD intentions (Tanrıverdi et al., 2019). This underscores the importance of cultural integration as a factor influencing migration outcomes. According to Berry (1997) and Nguyen & Benet-Martínez (2013), integration strategy tends to yield better psychological well-being; yet high adaptation may reduce return impetus, whereas separation or marginalization could intensify it. This highlights the paradox that successful acculturation can both support adaptation and discourage return, depending on which needs (e.g., belonging vs. career) are better met abroad.

By emphasizing the role of acculturation (Berry, 1980) and perceived social responsibilities in return migration decisions, this study contributes to the growing body of social psychological migration literature. It highlights how identity-related processes — such as cultural adaptation, in-group obligations, and collective purpose — intersect with institutional and policy-level dynamics to shape highly skilled individuals' mobility choices.

Limitations and Future Directions

First, although participants represented a variety of backgrounds, the relatively small sample size and the absence of a focus on specific professional sectors may limit the representativeness of the findings. Future research could address this by concentrating on particular occupational groups (e.g., academics, healthcare professionals, engineers) or by expanding the sample to include more diverse returnee profiles.

Second, the study relied on a qualitative design based on interviews. While this approach allowed for rich, in-depth insights into participants' subjective experiences, it may not capture broader population-level

dynamics. Employing complementary quantitative or mixed-method designs could therefore strengthen the generalizability and robustness of future findings.

Third, the socio-political and economic conditions of Türkiye at the time of data collection may have shaped participants' views, and these contextual factors are subject to change. Longitudinal research would be useful to examine how shifting national and global circumstances influence brain drain (BD) and reverse brain drain (RBD) decisions over time.

Despite these limitations, the study provides valuable contributions by foregrounding the psychological and cultural dimensions of skilled migration. Future research should build on these insights to develop more comprehensive frameworks that integrate individual-level motivations with structural and policy-level dynamics.

Finansman/ Grant Support

Yazar(lar) bu çalışma için finansal destek almadığını beyan etmiştir.

The author(s) declared that this study has received no financial support.

Çıkar Çatışması/ Conflict of Interest

Yazar(lar) çıkar çatışması bildirmemiştir.

The authors have no conflict of interest to declare.

Yazarların Katkıları/Authors Contributions

Çalışmanın Tasarlanması: Yazar-1 (%25), Yazar-2 (%25), Yazar-3 (%25), Yazar-4 (%25)

Conceiving the Study: Author-1 (%25), Author-2 (%25), Author-3 (%25), Author-4 (%25)

Veri Toplanması: Yazar-1 (%33,3), Yazar-2 (%33,3), Yazar-3 (%33,3), Yazar-4 (%0)

Data Collection: Author-1 (%33,3), Author-2 (%33,3), Author-3 (%33,3), Author-4 (%0)

Veri Analizi: Yazar-1 (%25), Yazar-2 (%25), Yazar-3 (%25), Yazar-4 (%25)

Data Analysis: Author-1 (%25), Author-2 (%25), Author-3 (%25), Author-4 (%25)

Makalenin Yazımı: Yazar-1 (%25), Yazar-2 (%25), Yazar-3 (%25), Yazar-4 (%25)

Writing Up: Author-1 (%25), Author-2 (25), Author-3 (%25), Author-4 (%25)

Makale Gönderimi ve Revizyonu: Yazar-1 (%0), Yazar-2 (%0), Yazar-3 (%0), Yazar-4 (%100)

Submission and Revision: Author-1 (%0), Author-2 (%0), Author-3 (%0), Author-4 (%100)

Açık Erişim Lisansı/ Open Access License

This work is licensed under Creative Commons Attribution-NonCommercial 4.0 International License (CC BY NC).

Bu makale, Creative Commons Atıf-GayriTicari 4.0 Uluslararası Lisansı (CC BY NC) ile lisanslanmıştır.

References

- About Hashish, E., & Ashour, H. M. (2020). Determinants and mitigating factors of the brain drain among Egyptian nurses: A mixed-methods study. *Journal of Research in Nursing*, 25(8), 699-719. <https://doi.org/10.1177/1744987120940381>
- Alberts, H. C., & Hazen, H. D. (2005). "There are always two voices...": International Students' Intentions to Stay in The United States or Return to Their Home Countries. *International migration*, 43(3), pp. 131-154. <https://doi.org/10.1111/j.1468-2435.2005.00328.x>
- Ateş, İ., & Köksal, Y. A. (2021). Beyin Göçü-Mutluluk İlişkisi: Türkiye'de Akademisyenler İçin Ampirik Bir Analiz. *Aydın Faculty of Economics Journal*, 6(2), p. 63-82. <https://doi.org/10.53839/aifd.1026339>
- Aydın, O. A., Mutlu, H., Pozanti, S., & Soysal, F. (2025). Üniversite Öğrencilerinin Gelecek Kaygıları ile Beyin Göçü Arasındaki İlişki Üzerine Bir Çalışma. *Journal of Innovative Healthcare Practices*, 6(2), 101-114.
- Azevedo, A., Custódio, M. J., & Perna, F. (2013). Are you happy here? The relationship between quality of life and place attachment. *Journal of Place Management and Development*, 6(2), 102-119. <https://doi.org/10.1108/JPMD-06-2012-0017>
- Bakırtaş, İ., & Kandemir, T. (2010). Developing countries and brain drain: Example of Turkey. *Journal of Academic Studies*, 12(45), 117-134.

- Beine, M., Docquier, F., & Rapoport, H. (2008). Brain drain and human capital formation in developing countries: Winners and losers. *The Economic Journal*, 118(528), 631–653. <https://doi.org/10.1111/j.1468-0297.2008.02135.x>
- Berry, J. W. (1980). Acculturation as varieties of adaptation. In A. M. Padilla (Ed.), *Acculturation: Theory, models and some new findings*. Boulder, CO: Westview Press.
- Berry, J. W. (1997). Immigration, acculturation, and adaptation. *Applied Psychology: An International Review*, 46(1), 5–34. <https://doi.org/10.1111/j.1464-0597.1997.tb01087.x>
- Cassarino, J. P. (2004). Theorising return migration: The conceptual approach to return migrants revisited. *International Journal on Multicultural Societies*, 6(2), 253–279.
- Ciomasu, I. M. (2010). Turning brain drain into brain networking. *Science and Public Policy*, 37(2), 135–146. <https://doi.org/10.3152/030234210X489572>
- Cohen, J. A., & Kassin, A. (2018). Being in-between: A model of cultural identity negotiation for emerging adult immigrants. *Journal of Counseling Psychology*, 65(2), 133–154. <https://doi.org/10.1037/cou0000265>
- de Haas, H., & Fokkema, T. (2011). The effects of integration and transnational ties on international return migration intentions. *Demographic Research*, 25(24), 755–782. <https://doi.org/10.4054/DemRes.2011.25.24>
- Deci, E. L., & Ryan, R. M. (2000). The “what” and “why” of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, 11(4), 227–268. https://doi.org/10.1207/S15327965PLI1104_01
- Docquier, F., & Rapoport, H. (2012). Globalization, brain drain, and development. *Journal of Economic Literature*, 50(3), 681–730. <https://doi.org/10.1257/jel.50.3.681>
- Fard, A., & Paydar, M. (2024). Place Attachment and Related Aspects in the Urban Setting. *Urban Science*, 8(3), 135. <https://doi.org/10.3390/urbansci8030135>
- Fu, M. (2014). A Cultural Analysis of China’s Scientific Brain Drain: The Case of Chinese Immigrant Scientists in Canadian Academia. *Int. Migration & Integration*, 15, pp. 197–215. <https://doi.org/10.1007/s12134-013-0275-7>
- Guo, F., & Iredale, R. (2003, October). Unemployment Among The Migrant Population in Chinese Cities: Case Study of Beijing. In *Proceedings of the Fifteenth Annual Conference of the Association for Chinese Economic Studies Australia (ACESA)*. Sydney, Australia.
- Güngör, N. D., & Tansel, A. (2008). Brain drain from Turkey: An investigation of students’ return intentions. *Applied Economics*, 40(23), 3069–3087. <https://doi.org/10.1080/00036840600993999>
- Güngör, N. D., & Tansel, A. (2014). Brain drain from Türkiye: Return Intentions of Skilled Migrants. *International Migration*, 52(5), p. 208–226. <https://doi.org/10.1111/imig.12013>
- Hao, J., & Welch, A. (2012). A tale of sea turtles: Job-seeking Experiences of Hai Gui (high-skilled returnees) in China. *Higher Education Policy*, 25(2), pp. 243–260. <https://doi.org/10.1057/hep.2012.4>
- Ho, N. T. T., Seet, P. S., & Jones, J. (2018). From Brain Drain and Brain Gain to Brain Circulation: Conceptualizing Re-Expatriation Intentions of Vietnamese Returnees. *Internationalisation in Vietnamese higher education*, pp. 217–234.
- IOM (2005), World Migration Report 2005. https://publications.iom.int/system/files/pdf/wmr_2005_3.pdf
- Ismail, M., Kunasegaran, M., & Rasdi, R. M. (2014). Evidence of Reverse Brain Drain in Selected Asian Countries: Human Resource Management Lessons for Malaysia. *Organizations and Markets in Emerging Economies*, 5(1), pp. 31–48.

- Jonkers, K., & Tijssen, R. (2008). Chinese researchers returning home: Impacts of international mobility on research collaboration and scientific productivity. *Scientometrics*, 77(2), 309–333. <https://doi.org/10.1007/s11192-007-1971-x>
- Kale, D., & Little, S. (2007). From Imitation to Innovation: The Evolution of R&D Capabilities and Learning Processes in the Indian Pharmaceutical Industry. *Technology Analysis & Strategic Management*, 19(5), pp. 589-609. <https://doi.org/10.1080/09537320701521317>
- Köksal, Y. A. (2021). Happiness Economy and Brain Drain: The Case of Türkiye, (YÖK Thesis No. 671442) [Master Thesis, Aydın Adnan Menderes University, Institute of Social Sciences]. YÖK National Thesis Center.
- Kurokawa, C., & Kusakabe, T. (2025). Reversing brain drain to brain gain: Examining the drive of educated Sudanese migrants to return and contribute to their home country. *International Journal of Educational Development*, 117, 103342. <https://doi.org/10.1016/j.ijedudev.2025.103342>
- Lee, E. S. (1966). A theory of migration. *Demography*, 3, 47-57.
- Li, W. (2023). *Introduction: the intellectual migration analytics*. *Journal of Ethnic and Migration Studies*, 49(18). <https://doi.org/10.1080/1369183X.2023.2270314>
- Lygerou, E. (2025). Reversing the brain drain: Investigating causes and strategic HR interventions for retaining and repatriating young skilled Greek professionals. *Journal of Multidisciplinary Engineering Science and Technology*, 12(5). <https://www.jmest.org/wp-content/uploads/JMESTN42354528.pdf>
- Metin, F. (2025). Brain Circulation Status of Türkiye. *Yükseköğretim Dergisi*, 15(1), 169-182.
- Nguyen, A.-M. D., & Benet-Martínez, V. (2013). Biculturalism and adjustment: A meta-analysis. *Journal of Cross-Cultural Psychology*, 44(1), 122–159. <https://doi.org/10.1177/0022022111435097>
- Öneri, İ. (2019). *Brain drain from Türkiye (2007–2017) [Türkiye’den beyin göçü (2007–2017)]* (Unpublished master’s project). Pamukkale University, Institute of Educational Sciences. Retrieved from: <https://gcris.pau.edu.tr/handle/11499/3501>
- Royal Society. (1963). *Emigration of scientists from the United Kingdom*. London: Royal Society.
- Rüzgar, M. E. (2020). To Return or Not to Return, That is the Question. *Qualitative Research in Education Journal*, 8(4), p. 1080 - 1115. <https://doi.org/10.14689/issn.2148-2624.8c.4s.2m>
- Sağbaş, S. M. (2009). *Beyin Göçünün Ekonomik ve Sosyal Etkileri: Türkiye Örneği* [Unpublished Master Thesis]. Marmara University.
- Schwartz, S. J., Unger, J. B., Zamboanga, B. L., & Szapocznik, J. (2010). Rethinking the concept of acculturation: Implications for theory and research. *American Psychologist*, 65(4), 237–251. <https://doi.org/10.1037/a0019330>
- Sönmez Çalış, Ö. A. (2019). *Reverse Brain Drain to Türkiye A Qualitative Research*. [Unpublished doctoral dissertation]. Sakarya University.
- Sunata, U. (2014). Tersine Beyin Göçünde Sosyal Ağların Rolü: Türkiyeli Mühendislerin Almanya’dan Geriye Göç Deneyim ve Algıları. *Turkish Psychology Articles*, 17(34), pp. 85-96.
- Tajfel, H., & Turner, J. C. (1979). An integrative theory of intergroup conflict. In W. G. Austin & S. Worchel (Eds.), *The social psychology of intergroup relations* (pp. 33–47). Monterey, CA: Brooks/Cole.
- Tanrısevdi, F., Durdu, İ., & Tanrısevdi, A. (2019). Beyin Göçü mü? Beyin Gücü mü?. *Journal of Travel and Tourism Research*, 15(15), 133-158.
- Vega-Muñoz, A., González-Gómez-del-Miño, P., & Contreras-Barraza, N. (2025). *The determinants of brain drain and the role of citizenship in skilled migration*. *Social Sciences*, 14(3). <https://doi.org/10.3390/socsci14030132>

- Wadhwa, V. (2009). A Reverse Brain Drain. *Issues in Science and Technology*, 25(3), pp. 45-52. <https://www.jstor.org/stable/43314945>
- Ward, C., & Geeraert, N. (2016). Advancing acculturation theory and research: The acculturation process in its ecological context. *Current Opinion in Psychology*, 8, 98-104. <https://doi.org/10.1016/j.copsyc.2015.09.021>
- Ward, C., & Kennedy, A. (1999). The measurement of sociocultural adaptation. *International Journal of Intercultural Relations*, 23(4), 659-677. [https://doi.org/10.1016/S0147-1767\(99\)00014-0](https://doi.org/10.1016/S0147-1767(99)00014-0)
- Yan, K., & Berliner, D. C. (2011). An Examination of Individual Level Factors in Stress and Coping Processes: Perspectives of Chinese International Students in The United States. *Journal of College Student Development*, 52(5), pp. 523-542. <https://doi.org/10.1353/csd.2011.0060>
- Yılmaz, E. (2019). The Situation of Brain Drain in Türkiye Within the Context of International Brain Drain Movements. *LAÜ Social Science Journal*, 10(2), pp. 220-232.
- Zweig, D. (2006). Competing for Talent: China's Strategies to Reverse the Brain Drain. *International Labour Review*, 145(1-2), pp. 65-90. <https://doi.org/10.1111/j.1564-913X.2006.tb00010.x>
- Zweig, D., & Wang, H. (2013). Can China bring back the best? The Communist Party organizes China's search for talent. *The China Quarterly*, 215, 590-615. <https://doi.org/10.1017/S0305741013000751>