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The Brain Drain of Moroccan IT Profiles: An Exploratory Qualitative Study within Y and Z Generations

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ABSTRACT

The objective of this study is to identify and analyze the main factors driving young Moroccan IT professionals to emigrate. Through qualitative exploratory research, we aim to explore the brain drain within individuals belonging to the Y and Z generations. The theoretical model of this study was based on Lee (1966) general framework. The research methodology was based on conducting semi-structured interviews with 22 young IT professionals who have either already emigrated with significant years of experience. This qualitative approach allows us to understand the multifaceted nature of their decision-making process. Through the data analysis, we have identified three dichotomous factors that serve as both push and pull factors, contributing to the phenomenon of brain drain among young IT professionals in Morocco. These factors include economic considerations, professional aspirations and social dynamics. Each factor plays a distinct yet interconnected role in shaping individuals' decisions to emigrate.

Keywords: Brain Drain, Push Factor, Pull Factor, Generation Y, Generation Z, Young IT Profiles
JEL Classifications: O15, F60, J61, J68

1. INTRODUCTION

Throughout human history, individuals have emigrated either alone or in groups, shifting from one country to another and from one continent to another (Dehass et al., 2019). Immigration has been motivated by various factors, which have evolved with the changing contexts of different historical periods, including war, escape, natural disasters and the pursuit of job opportunities (Hatton and Williamson, 2003). The advent of globalization has transformed the world into a global village, significantly easing the movement of individuals from one location to another, thereby enabling them to traverse distances with greater ease (Simmons, 2002). Globalization has not only facilitated significant growth in trade between countries but has also opened up new markets for firms. Consequently, heightened competition has compelled companies to enhance their competitiveness, which is essential for survival and sustained global performance (Marniesse and Filipiak, 2003; Koser and Martin, 2019). Attracting suitable profiles has become a major challenge due to the increasing mobility of employees (Al Ariss et al., 2014; Da Silva et al., 2022). This mobility represents a crucial issue; as human capital is rapidly transforming into a "workforce without borders." Today, countries are struggling with a phenomenon known as brain drain, where highly skilled and educated individuals leave their home countries, often opting for developing nations in search of better opportunities and quality of life (Bhawana and Dipanker, 2023). Human capital and knowledge workers are recognized as the backbone of learning organizations and knowledge-based economies.

Morocco, lacking in natural resources, has historically viewed emigration as a means to address chronic macroeconomic deficits and rampant unemployment while fostering economic growth (Berriane et al., 2021). Furthermore, emigration not only enhances the country's international reputation but also plays a crucial role in addressing the challenges posed by the inefficiencies of the educational system around the World (Pudryk et al., 2023). Moreover, Morocco is one of those countries suffering from the loss of its qualified workers, mainly in the IT sector (Bououiyour et al.,

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2014). Even if the sector is generous in terms of job opportunities 315 000 new positions for IT profiles in the Moroccan market in 2021 were identified, around 600 IT profiles leave the country each year to work and live abroad (Haut Commissariat au Plan, 2019; World Bank Report, 2021). Thus, Morocco faces a loss of its talents. This brain drain impacts directly Moroccan companies, struggling to find available employees within the labor market (Bennaghmouch et al., 2023).

2. LITERATURE BACKGROUND AND THEORETICAL FOUNDATIONS

Behind every product, service, or achievement lays the effort of the human mind. Organizations must prioritize the attraction of highly skilled and competitive candidates (Lee et al., 2024). It is crucial to recognize that human resources constitute intangible assets, given that their knowledge, skills, and behaviors are integral to organizational success (Muscalu, 2015).

The phenomenon of brain drain has evolved over generations, with varying consequences for different individuals (Vega-Muñoz et al., 2021). For older generations, brain drain often meant leaving their home countries for better economic opportunities or political stability. Studies such as (Marchiori et al., 2013) have highlighted how brain drain in the mid-20th century contributed to the loss of skilled professionals in developing nations. However, with the advent of globalization and technological advancements, the nature of brain drain has shifted. Younger generations, particularly Y and Z generations, are more likely to engage in mobility (Turner, 2015). This form of brain circulation and flow allows individuals to maintain ties with their home countries while gaining international experience (Vega-Muñoz et al., 2021). While brain drain continues to pose challenges for countries of origin, some scholars argue that it can also stimulate innovation and knowledge transfer, especially in the digital age (Ndiangui, 2021). Understanding the characteristics of different generations is crucial for explaining the dynamics of brain drain (Latukha et al., 2022).

According to Mannheim (1928), a generation refers to an aggregate of people distinguished by their age. Consequently, different generations may exhibit distinct values due to varying life courses and historical contexts (Mannheim, 1952). Strauss and Howe (2010) further define a generation as a cohort of individuals who share birth years and collective experiences as they progress through time together, influencing and being influenced by various significant factors. These factors encompass shifts in societal attitudes, changes in social, and public policies. As highlighted by Lyons et al., (2007), five distinct generations are commonly identified. Table 1 illustrates the different generations as cited by Lyons et al., (2007).

The sociological evolution of generations reflects the dynamic interplay between societal changes and generational characteristics (Mannheim, 1928). Each generation is shaped by the historical context, technological advancements, economic conditions, and cultural shifts prevalent during their formative years (Howe, 2010). For instance, the silent Generation, born between the mid-1920s and early 1940s, experienced the Great Depression and World War II, which instilled values of frugality, sacrifice, and conformity (Lyons et al., 2007). In contrast, the baby boomers, born between the mid-1940s and mid-1960s, grew up during a period of economic prosperity and social upheaval, leading to a focus on individualism, activism, and anti-establishment sentiments. Generation X, born between the mid-1960s and early 1980s, witnessed the rise of technology and globalization, fostering independence, skepticism, and adaptability. Generation Y, born between the early 1980s and mid-1990s, came of age in the digital era, characterized by rapid technological advancements, globalization, and economic uncertainty, shaping their values of diversity, connectivity, and work-life balance. Generation Z, born from the mid-1990s onwards, are digital natives who have never known a world without the internet and social media, influencing their attitudes towards technology, social justice, and environmental sustainability. As societal norms evolve, each generation brings its unique perspectives and contributions, influencing cultural, economic, and political landscapes (Castles et al., 2013).

Table 1: Characteristics of generations (Lyons et al., 2007)

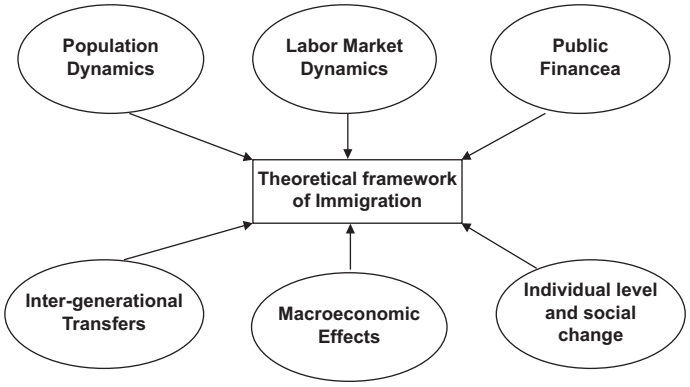
Generation	Period of birth	Main characteristics of the generation according to Lyons et al., (2007)
Veterans	1925-1946	The generation of veterans, often referred to as the "Greatest Generation," is characterized by their resilience, patriotism, and selflessness, exemplified through their sacrifices during times of war and their contributions to rebuilding society post-conflict. Their values of duty, honor, and loyalty continue to inspire admiration and respect across generations
Baby boomers	1946-1964	The baby boomer generation is renowned for its significant societal impact, characterized by a surge in population, economic prosperity, and cultural revolutions. Baby boomers are often associated with values of ambition, individualism, and social change, shaping policies and norms in areas such as civil rights, feminism, and economic policies
Generation X	1964-1980	The Generation X is often defined by its adaptability, skepticism, and resilience in navigating rapid societal changes. This generation is characterized by a pragmatic approach to work-life balance, technological innovation and a cultural shift towards individuality and self-expression
Generation Y	1980-1995	The Generation Y, also known as Millennials, was born between the early 1980s and mid-1990s, is renowned for its technology oriented nature, emphasis on work-life balance, and commitment to social causes. This generation is characterized by its digital fluency, entrepreneurial spirit, and desire for meaningful work, driving shifts in workplace culture and consumer preferences
Generation Z	1995-2010	The Generation Z cohort is characterized by its digital nativism, diversity, and global interconnectedness. This generation is known for its entrepreneurial mindset, social consciousness, and reliance on technology for communication, education, and activism, shaping the future of work and societal norms

Focusing on the generations Y and Z is crucial for understanding the dynamics of brain drain in the modern era, given their unique digital fluency, global outlook, and propensity for transnational mobility. Generation Y, derived from the English word "Youth," represents the first wave of the digital generation born into a world of advancing technology. This generation is characterized by its large numbers, higher affluence, superior education levels, and ethnically diverse backgrounds, alongside positive social habits. Generation Y also known as millennials are recognized as compliant team players who respect authority, adhere to rules, exhibit intelligence, and hold optimistic beliefs about the future and the potential for change. They also value established societal norms such as home, family life, community, and education (Lancaster and Stillman, 2002). Generation Z, often described as technological, social, global, and developed, is considered the most connected, intelligent, and educated generation to date. They have readily embraced technological advancements and are heavily influenced by social media, brands, and musical culture (Cavalli, 2004). Members of Generation Z were born after the advent of the internet and mobile phones, meaning they have never experienced life without these innovations readily available to them. Smola and Sutton (2002) delve into the multifaceted attitudes toward work across generations. Generation X values work-life balance and autonomy, often seeking flexibility in their careers. Millennials, raised in the digital age, seek meaningful work that aligns with their values and are more inclined towards collaborative and purpose-driven environments. Generation Z, entering the workforce with a unique set of skills and expectations, gravitates towards diverse opportunities for growth and values innovation and adaptability in their work environments. Understanding these generational differences is crucial for creating inclusive and effective workplace strategies.

To comprehensively understand the phenomenon of brain drain inside Generation Y and Z, it is imperative to explore the broader context of immigration and understand the underlying reasons why individuals choose to leave their countries of origin. Simmons (1987) defines immigration as a change in residence, employment, and social relations. Unlike other demographic events such as births and deaths, which are relatively precise and non-repeatable, immigration encompasses various forms of population movement, all of which can occur repeatedly throughout an individual's lifetime. The most widely used immigration framework, proposed by Lee (1966), offers a comprehensive model explaining the motivations behind movement. Figure 1 shows the component of Lee (1966) theoretical framework.

The Lee model, developed in 1996, is a theoretical framework that seeks to understand the implications of immigration. The model considers the demographic characteristics of both the sending and receiving countries, including population size, age structure, fertility rates, and mortality rates. Regarding markets labor dynamics, the model shed light on how immigration affects the labor market of the receiving country, including wages, employment levels, and skill distribution. This component also considers the impact of immigration on native workers and overall labor productivity. The model also analyzes the fiscal impact of immigration on government budgets, including taxes

Figure 1: The component of Lee framework model (1966)



paid by immigrants, public services utilized, and welfare benefits received. It explores how immigration influences government expenditures and revenues. One of the relevant components of the lee model is the intergenerational transfers. Thus, this component refers to the transfers of wealth and resources within immigrant families and between immigrants and their home countries. It considers remittances sent by immigrants to their families and the impact of immigration on the welfare of future generations. At macroeconomic effect level, the model explores the broader macroeconomic effects of immigration, such as its impact on economic growth, consumption patterns, and investment levels. This component considers how immigration influences aggregate demand and supply in the economy.

According to Lee (1966), on individual level, immigration is driven by both positive factors (pull factors) characterizing the destination countries and negative factors (push factors) associated with the countries of departure. Pull factors represent incentives in receiving countries that attract individuals seeking employment opportunities, while push factors stands from circumstances or events in home countries that compel individuals to leave. The greater the disparity between these factors in the destination and origin, the more likely immigration becomes (Lee, 1966).

Singh and Krishna in 2015 has applied the lee's Model to understand the main reasons behind the brain drain of Indians IT professional. The authors identify factors such as low salaries, limited career advancement opportunities, and a lack of recognition in India as push factors, while better salaries, more attractive career paths, and a higher quality of life are considered pull factors for working in developed countries. The study highlights the need for India to address these factors to retain its IT talent and foster a more supportive ecosystem for the growth of the IT industry

In its simplest form, a combination of push factors in one's country of origin and attractive factors in the destination country facilitates emigration flows (Levitt and Glick, 2020). Immigration is not solely driven by opportunities in the destination; knowledge of the destination also plays a crucial role in facilitating movements. Generally, brain drain is driven by a combination of push and pulls factors. The aim of this study is to investigate and analyze the multiple factors (Push and Pull) contributing to the substantial immigration of young Moroccan IT professionals, utilizing Lee's immigration framework as a

theoretical basis. The current study is an attempt to provide insights to the following research questions:

- Research Question 1
  What is the primary factors motivating young IT professionals in Morocco to immigrate?

- Research Question 2
  How do destination countries attract and retain IT young talents from Morocco? What incentives and opportunities do they offer to attract skilled professionals from abroad?

- Research Question 3
  Do young IT professionals who have emigrated from Morocco recommend or advise others to make the same decision to immigrate? What is the effect of network on immigration decision? How do young IT professional evaluate the experience of immigration?

3. RESEARCH METHODOLOGY

An explanatory research based on qualitative methodology was used to address research questions. Exploratory research in the context of brain drain represents a vital approach for understanding the complex phenomenon of highly skilled professionals emigrating from one country to another. Employing a qualitative methodology, this study explores the experiences, motivations, and aspirations of Moroccan technology professionals, especially those from Generations Y and Z (Miles et al., 2014). Through this exploration, we aim to discover patterns, trends, and relationships within the context of brain drain in Morocco, providing a fundamental understanding.

3.1. Data Collection

The data were collected through semi-structured interviews conducted with participants who are currently residing abroad. Each interview lasted between 35 and 45 min, allowing for in-depth discussions about the participants' immigration experiences. The interviews were recorded and transcribed verbatim, and the data were analyzed using NVivo, qualitative data analysis software. The interview questions were open-ended and covered various aspects, including the participants' age, academic background, and motivations for immigrating. Additionally, participants were asked about their experiences and perceptions related to the immigration process. Table 2 displays the structure of the semi-structured questionnaire used to perform the interviews.

3.2. Participants

The sample for this study comprised 22 IT Moroccan specialists, encompassing individuals from both Generation Y and Generation Z. The decision to limit the sample size to 22 participants was made due to the saturation of information observed during data collection. As stated by Glaser and Anselm (1967), once information saturation is observed in qualitative research, it signifies that further data collection may not yield new insights or perspectives. The authors chose to focus specifically on young IT professionals holding primarily master's or engineering degrees, as they represent a group directly affected by brain drain. To recruit participants, the authors utilized LinkedIn, reaching out to individuals via messages to invite them to participate to this research. Utilizing a non-probabilistic sampling approach holds significant importance in this study as it allows for targeted exploration of specific groups within the population of interest (Cornesse et al., 2020). Table 3 shows the characteristics of the participants.

4. DATA ANALYSIS AND DISCUSSION

Interviews with participants shows the primary motivations behind the immigration of young Moroccan IT professionals. Through the analysis of transcribed interviews and the use of NVivo software, which provided valuable matrix and graphs, we were able to identify the key factors driving this population to immigrate. Additionally, facilitating conditions that contributed to the immigration process were also identified. The results of this analysis will be presented in detail within the following paragraphs, providing insight into the complex dynamics and factors influencing the immigration decisions of IT professionals from Morocco.

4.1. Data Encoding Procedure

Using content analysis, word frequency, and condensed matrix, the data were coded and analyzed using NVivo software. Following the transcription of conducted interviews, the data were inputted into NVivo in the form of individual files (Word documents), with each

Table 2: Structure of the interview process

Phase 1	
Introduction of the research objective and identification of the respondent	The author outlined the objectives of the research and provided details on the data collection process. Subsequently, interviewees were requested to provide information about their profiles, including age, academic field of study, and the country they migrated to.
Phase 2	
Understanding the immigration situation	In this second phase, the authors aim to understand the current immigration situation of each respondent. This includes exploring the main reasons for immigration, the decision-making process involved, the motivations driving the decision to emigrate, as well as any facilitating conditions that may have influenced the immigration experience. By analyzing the respondents' answers, the authors seek to identify both the push and pull factors contributing to immigration, as well as any facilitating conditions that may have influenced the decision-making process.
Phase 3	
Summary of responses, and closing of the interview	After collecting responses, the author carefully reviews the interviewees' answers, analyzing the main reasons for immigration, the decision-making process, motivations, and facilitating conditions. Finally, the author requests the interviewers' overall feedback on their immigration experience. The confidentiality of responses was assured throughout the research process to maintain the privacy and anonymity of the participants.

Table 3: Caracteristics of the participants

Interviewer	Gender	Age	Country	Educational background	Level of experience[1]	Years of Immigration
1	Female	27	France	Engineer	Junior	3
2	Male	32	Canada	Master degree	Confirmed	5
3	Male	36	France	Master degree	Confirmed	5.5
4	Male	32	France	Master degree	Confirmed	4
5	Male	25	France	Master degree	Junior	1
6	Male	30	France	Master degree	Confirmed	3.5
7	Male	29	Canada	Engineer	Junior	4.5
8	Male	35	USA	Master degree	Confirmed	8
9	Male	27	Germany	Engineer	Junior	1.5
10	Male	36	France	Master degree	Confirmed	7
11	Female	32	U.K	Master degree	Confirmed	4.5
12	Male	29	France	Enginner	Confirmed	3
13	Female	27	France	Engineer	Junior	2.5
14	Female	26	France	Master degree	Junior	2
15	Male	26	Canada	Master degree	Confirmed	5
16	Male	37	France	Engineer	Junior	3.5
17	Female	27	France	Engineer	Confirmed	3
18	Male	26	France	Master degree	Confirmed	2.5
19	Male	37	USA	Engineer	Confirmed	4.5
20	Male	28	France	Master degree	Confirmed	3.5
21	Male	32	France	Engineer	Confirmed	5
22	Female	37	U.K	Engineer	Confirmed	6

1. Level of experience refers to professional experience of everyone: junior (graduate student to 3 years of experience), senior (from 3 to 5 years of experience), confirmed (individuals working for more than 5 years)

file representing a single interview. Specific attributes such as sex, age, type of training, level of experience, and host country were assigned to each interviewee, serving as the main sources of information. Subsequently, Nodes in NVivo were created to serve as the building blocks of qualitative analysis, allowing us to systematically organize and categorize the data based on themes, concepts, or patterns. Word frequency and condensed matrix, were generated within Nvivo to visualize the data analysis. Figure 2 provides a summary of the processing and analysis procedure conducted using Nvivo.

The Nvivo software interface is organized around three main tabs:

- Data, which includes imported files (the main source of information). These same files will later be analyzed by the software
- Codes, which are the main themes that will be created in the form of nodes to allow for corpus analysis
- Cases, which are all the descriptive information associated with each interview, allowing for the analysis of interviews based on their characteristics.

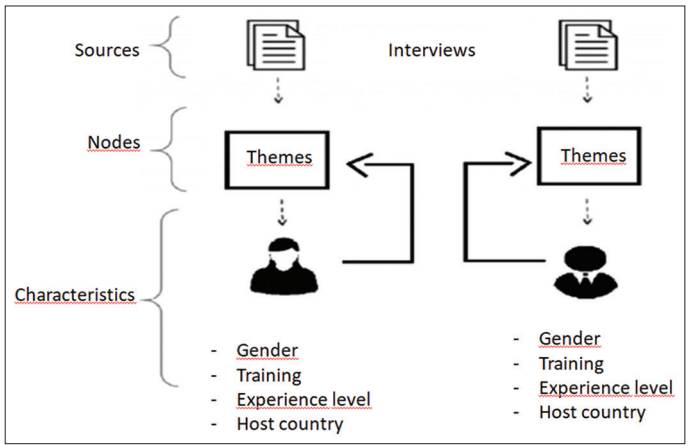
Thus, in this section, we will describe the three (3) steps undertaken, highlighting the different procedures, enabling us the analysis of the content of interviews with participants. Namely:

- Step 1: The interview integration procedure
- Step 2: The node creation procedure
- Step 3: The node coding procedure.

4.1.1. Elaborating words map frequency

Figure 3 illustrates the initial analysis conducted using NVivo, focusing on the word frequency. This figure highlights the frequency of specific words within a corpus of text, providing insights into patterns and trends in their usage. The figure ranks words based on their occurrence, with the most frequently used words appearing at the top. This analysis offers valuable insights

Figure 2: Processing procedures on Nvivo



into the language and themes present within the dataset, aiding in the identification of key factors and trends related to the immigration experiences of young Moroccan IT professionals.

As depicted in Figure 3, several words emerge prominently as frequently cited, encompassing various themes. Notably, "employment," "salary," and "opportunities" stand out among these words. IT professionals are increasingly drawn to immigrate in search of better job prospects, as highlighted by the frequent mention of these terms in the dataset. Motivated by the challenges of securing suitable employment, they seek higher salaries, enhanced working conditions, interesting work projects, learning and development opportunities and a more fulfilling social life in destination countries. Participants in our study frequently mention the array of incentives offered by companies in destination countries as a driving force behind their decision to emigrate. These incentives are perceived as lacking in Morocco, further motivating young IT professionals

Figure 3: General words Map frequency

to pursue opportunities abroad and enrich their professional and personal experiences.

The decision to immigrate is motivated by a combination of pull and push factors. Interviewees confirm that immigrating was undoubtedly beneficial, considering the positive consequences and changes it brought to their lives. Additionally, the social environment in which they reside plays a motivating role in their decision-making process. Several facilitators were identified, including the language spoken, the proximity of the host country, assistance from existing immigrant networks and the uncomplicated visa procedure. Overall, companies abroad attract this population with promises of better compensation, improved working conditions and other enticing benefits.

4.1.2. Choice of destination country

While exploring the factors influencing the choice of host country among individuals in our sample, we discovered a variety of responses, which we can categorize into distinct categories. These categories represent different motivations and preferences driving the selection of a specific destination. The first category comprises professionals who opt to pursue their university degrees in the host country. These individuals are often young, pursuing masters and IT engineering programs, or participating in exchange programs to obtain their diplomas. For them, finding relevant job opportunities as junior IT specialists is relatively straight forward. They are already well-integrated and accustomed to the new environment, making it less challenging for them to remain in the same area. The second category comprises individuals who have discovered attractive job opportunities abroad, either through online searches or recruitment efforts by foreign companies, often initiated via platforms like LinkedIn. These opportunities offer better remuneration, work conditions and social life leaving no chance to miss the opportunity. Factors such as language proficiency and the proximity of the destination play pivotal roles in their decision-making process. Proficiency in languages such as French or English, for example, facilitates the choice of a nearby location where they can increase their chances of success. However, some individuals choose more distant countries due to the exceptional prospects available there. The third category includes individuals who are open to relocating without any geographical constraints in search of compelling work projects. Their main motivation is to find opportunities that offer continuous learning and professional growth, which they perceive as lacking in Morocco. The projects available in their home country may not be considered as valuable by IT professionals who are actively striving to improve their career prospects. In general, the path of each individual may impact their choice of the host country. Indeed, the search for promising opportunities is the main motivation to immigrate, as individuals seek environments conducive to growth and learning.

In general, France emerges as the top destination for the young IT specialists from Morocco, owing to its reputation for abundant job opportunities, particularly for recent graduates. Whether seeking further education, diverse personal and professional experiences, or a new cultural and social environment, France attracts a significant number of young Moroccan IT professionals (Bououiyour et al., 2014).

4.1.3. Network influence

When deciding to emigrate, individuals are embedded within a community comprising family, friends, and colleagues, forming an extensive network (Blumenstock and Tan, 2019). IT professionals are sometimes influenced by the positive feedback shared within their network regarding the immigration experience. This sharing serves as a real motivation for individuals to embark on a similar path. Consequently, existing immigrants in a country facilitate integration for newcomers by addressing their uncertainties and calming their fears. Immigration is perceived as a cyclical phenomenon, where existing immigrants facilitate the transition for newcomers.

The majority of participants expressed that they could integrate easily abroad by connecting with individuals who had already lived in the new country and provided valuable advice. Moreover, relocating to a nearby country where people speak a similar language is a significant facilitator, fostering a sense of belonging and reducing feelings of isolation. For students who completed their academic studies in the host country, integration is considered as a gain. Although some differences in social and cultural life aspects are noted, individuals tend to overlook them in favor of embracing the opportunity for personal growth and learning.

4.1.4. Evaluating the experience of immigration

Immigrant experiences are often complex and multifaceted, encompassing a wide range of challenges, opportunities, and adaptations. Assessing these experiences requires a comprehensive approach that considers various factors, including the individual's background, motivations for migrating, pre-migration experiences, reception in the new country, and ongoing processes of integration and adaptation (Zhou and Li, 2022).

Almost all interviewees affirm that their decision to emigrate was the right one, as they discovered more compelling job opportunities, enabling personal and professional growth. As a result, they highly recommend fellow young IT professionals to consider immigration

as a means to access improved working conditions and expanded employment opportunities. However, it's essential to note that this advice is not universally applicable, as its relevance is contingent upon the individual objectives and priorities of each person.

4.1.5. Immigration factors

After analyzing different word frequencies of various nodes and examining the condensed matrix, we identified multiple reasons behind the massive brain drain of Moroccan IT professionals. In fact, our conclusion revealed a distinct pattern: we identified certain reasons that functioned as dichotomous factors, acting as both push factors (associated with the home country) and pull factors (associated with the host country). These factors serve as push factors, driving individuals to leave their home country due to the absence of desired elements. Conversely, these factors also act as pull factors, representing incentives in the host country that cater to the individual's needs and motivate them to immigrate. Figure 4 represents the word frequency query related to immigration factors.

Figure 4: Words Map frequency for factors of immigration

The existence of these dichotomous factors serves as a primary driver compelling young Moroccan IT professionals to immigrate. They frequently encounter favorable conditions related to various pull factors, motivating them to consider relocating from their home country in search of improved opportunities. Generally, the significant reasons for the immigration of young Moroccan IT individuals can be classified into three dichotomous factors: Economic, professional, and social. Table 4 provides a detailed illustration of these factors.

Due to their young age, the interviewees express their desire and appreciation for embarking on this adventure, aiming to evolve at the personal and professional levels to boost their careers before ultimately returning to Morocco and settling permanently. This aspiration is particularly common among the youth, who demonstrate a strong eagerness to enhance their personal and professional development, ultimately aiming to advance their careers.

The findings of this study on brain drain in Morocco resonate with the historical patterns of Moroccan immigration. Historically, Moroccans have been known for their migration tendencies, with significant immigration flows dating back several decades (Ennaji, 2014). This phenomenon has been influenced by various factors such as economic challenges, political instability, and the search for better opportunities abroad (Berriane et al., 2021). Moroccan emigration history has been shaped by a complex historical context marked by economic, political, and social factors. The migration patterns of Moroccans have evolved over time, influenced by colonialism, post-colonial transitions, and globalization. During the colonial period, particularly in the 20th century, Moroccan labor migration to Europe, notably to France, Spain, Belgium, and the Netherlands, played a significant role in meeting the labor demands of European industries (Berriane et al., 2021). Additionally, Moroccan immigration to other destinations such as the United States, Canada, and the Gulf countries has increased

Table 4: Weighted push and pull factors

Push factors	Weighted percentage[2]	Pull factors	Weighted percentage
Economic factors			
• Better remuneration offered in the host country	0.66	• Unsuitable remuneration conditions offered to IT profiles in Morocco	0.58
Professional factors			
• Availability of interesting work projects • Availability of job opportunities • Development of skills and employability through various training courses and certifications offered by companies • Better work environnement • Stability and safety at work	0.12	• Lack of interesting work projects • Few job opportunities available for IT profiles, especially juniors or graduate students • Unsupportive work environnement • Less perceived security	0.22
Social factors			
• Better social life environnement • Freedom and safety in life	0.22	• Difficult social life (bad quality of service in public administrations and institutions criticized commonly as the most significant example) • Less freedom and security perceived	0.20

2. The weighted percentage assigns a portion of the word's frequency to each group so that the overall total does not exceed 100%.

in recent decades, driven by diverse factors including family reunification, education, and employment opportunities.

5. CONCLUSION

In this study, we aim to analyze the determinants of immigration among Moroccan IT professionals to other countries. Our empirical analysis reveals that the wealth differential between Morocco and other countries emerges as the primary determinant of immigration, indicating immigration driven by economic motives. In general, the current study shows that the brain drain issue in Morocco is increasingly prominent, with a growing number of young IT professionals leaving the country each year in large numbers to live and work abroad. Motivated by a variety of factors that serve as both push and pull factors, individuals from the Y and Z generations choose to immigrate, seeking opportunities abroad that fulfill their main requirements and needs. Whether driven by professional, economic, or social motivations, these individuals seek better living and working conditions offered by companies overseas. Existing migrants play a crucial role in encouraging newcomers to make a similar move, facilitating smooth integration by sharing valuable advice. The supportive network around them makes the decision to relocate easier.

While qualitative research methodology based on interviews offers valuable insights into the experiences and perspectives of individuals affected by brain drain in Morocco, it is not without its limitations. One significant limitation is the potential for sampling bias, as the participants recruited for interviews may not represent the full diversity of experiences and viewpoints within the entire population. Additionally, reliance on self-reported data from participants may introduce subjective biases and inaccuracies, particularly regarding sensitive topics such as the reasons for emigration and the perceived impact of brain drain on Morocco. Furthermore, qualitative research findings may lack generalizability to the broader population. Finally, the interpretive nature of qualitative analysis introduces the possibility of bias in data interpretation and thematic coding, potentially influencing the conclusions drawn from the study.

After conducting an exploratory qualitative study on the phenomenon of brain drain, there are several promising directions for future research. Firstly, a comparative analysis could be undertaken to juxtapose the findings from this study with those from similar research conducted in other countries facing brain drain challenges. Such a comparative approach would help identify common patterns as well as unique contextual factors influencing migration decisions and their consequences. Secondly, a longitudinal study tracking the trajectories of Moroccan migrants over time could provide valuable insights into the long-term effects of brain drain on individuals. By following participants over an extended period, researchers could explore how brain drain experiences evolve, including factors such as career progression, social integration and potential return migration intentions.

A third opportunity for research could be explored by conducting a quantitative study based on the contextualization of Lee's model (1966) as a conceptual framework to differentiate between pull factors and push factors in the decision to emigrate. The qualitative study will enhance the generalizability of the findings. These three avenues of research would contribute to a deeper understanding of the complex dynamics underlying brain drain and inform policy interventions aimed at considering its negative impacts.

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