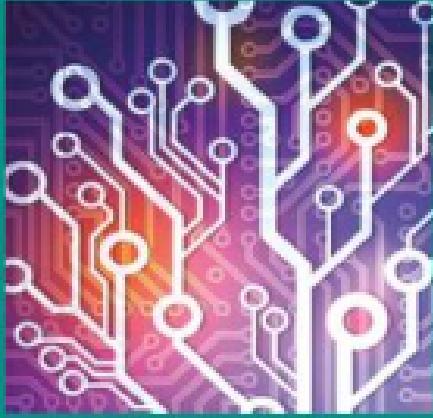
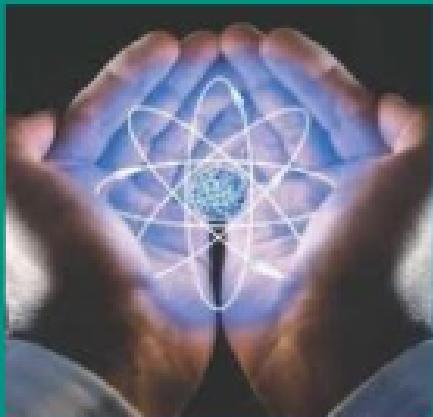


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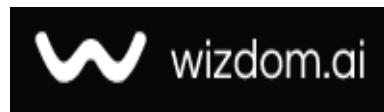
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Migration? s Developmental Role in Human Capital Formation: Evidence from (Morocco, India, and Jordan): Peran Migrasi dalam Pembentukan Modal Manusia: Bukti dari (Maroko, India, dan Yordania)

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Abstract

General Background: International migration has become a defining global phenomenon shaping economic and social structures in both sending and receiving countries. **Specific Background:**

Migration is closely linked to human capital formation through remittances, knowledge transfer, and labor mobility, while simultaneously generating challenges related to skilled labor outflows.

Knowledge Gap: Existing studies present divergent findings and lack comparative analysis across countries with different migration profiles. **Aims:** This study examines the developmental role of migration in human capital formation using comparative evidence from Morocco, India, and Jordan.

Results: The findings reveal a dual relationship in which migration supports skill accumulation, educational financing, and professional networking, while also contributing to brain drain and sectoral skill shortages. **Novelty:** The article provides a cross-country analytical framework that highlights context-specific migration outcomes. **Implications:** The results underline the importance of integrated migration and development policies that leverage remittances, diaspora networks, and return migration to support sustainable human capital development.

Keywords: International Migration, Human Capital, Remittances, Brain Drain, Development

Key Findings Highlights:

Migration generates both skill accumulation and skilled labor loss across countries

Remittances serve as a strategic resource for education and economic stability

National policy context determines developmental outcomes of migration

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Introduction

Because of globalisation and increased interconnection, worldwide migration has become the most significant phenomenon of the 21st century. The United Nations estimates that in 2020, 281 million people worldwide relocated overseas [1]. Because of this massive flow of people, demographic maps in both sending and receiving countries are altered, affecting the economic, social, and cultural dynamics of those nations. The fact that travellers bring back significant quantities of money is evidence of this. By 2023, remittances will have surpassed official development aid and will have saved millions of dollars, reaching a total of \$656 billion [2].

For a very long time, migration has been a major force shaping the global economy, society, and culture. Moving to a different country in search of better opportunities benefits both the home and host countries. Even though migration has many positive effects on the economy, it is challenging, especially in the production of human capital. Migrants may boost their home and host nations' economies by sharing their abilities. However, smart individuals flee emerging nations, impeding progress. This study asks two questions: how does migration help to development, and how does it change the knowledge and skills of sending and receiving countries in mutually incompatible ways?

These dynamics are examined using Moroccan, Jordanian, and Indian case studies. This research will evaluate remittances, knowledge transfer, and migrants' restrictions to show how migration affects human capital.

This research uses a hybrid approach to analyze quantitative and qualitative data. Economics uses quantitative data, whereas social consequences and skill development use qualitative data. Migration and human capital are addressed via two main ideas in this research. First, according to human capital theory, which was created by renowned economists Gary Becker [3] and Theodore Shultz [4], migration is considered an investment choice after evaluating the benefits and drawbacks, such as the expenses of relocation and adaption, against the benefits, which include greater salaries and better prospects. The social capital hypothesis developed by Pierre Bourdieu and Alejandro Portes ranks second [5] and [6]. This demonstrates the significance of social networks — family, friends, and community — in assisting future migrants, reducing the costs and hazards of migration, and making the transition and integration process easier.

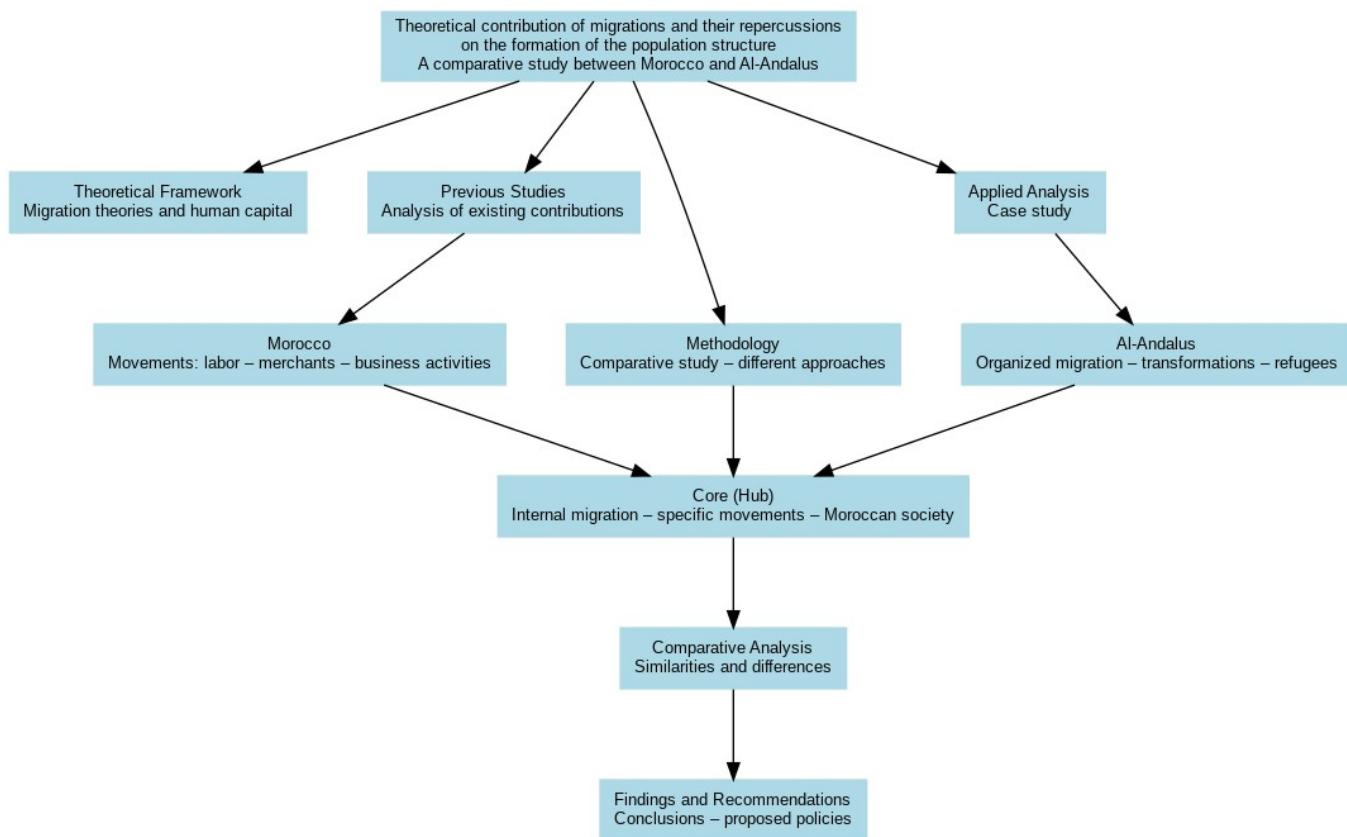


Figure 1.

1. Previous studies and the research gap :

Many scientific research have examined how migration affects human capital. These studies have shown different impacts of this relationship on sending and receiving nations.

Di Maria and Lazarova (2012) published "Migration, Human Capital Formation, and Growth: An Empirical Investigation" in *World Development* [7]. This research examined how skilled labor migration impacts emerging nations' economy and human capital. Two experts explored how these changes affected sending countries' growth. Migration rates affect human capital mix and levels. In low-human capital countries, skilled emigration hurts approximately 70% of the sample population.

DINKELMAN AND MARIOTI (2016) published "The Long-Run Effects of Labour Migration on Human Capital Formation in Communities of Origin," in *American Economic Journal: Applied Economics*. This study used empirical methods to analyze the dynamic effects of migration on educational and skill investment in countries of origin and the long-term effects of labor mobility on human capital accumulation. The findings advise studying migration's short- and long-term effects on human capital development.

The 2024 *Journal of Econometrics* article "Human Capital and Migration: A Cautionary Tale" studied migration's effects on human capital. It demonstrated that migrants' education ROI matters more for HR spending. This research undermines the idea that migration boosts human capital [9].

Ngoma (2013) published a comprehensive study on brain drain and human capital in poor nations in the *South African Journal of Economics*. This research examined how human capital flight affects educational success in migrants' home countries to address a lack of analytical approaches across theoretical viewpoints. This research developed a thorough analytical framework to explain how brain drain affects rising nations' educational and skill balance.

The fifth research, "The Impact of Brain Drain on Development: A Case Study of Morocco," by Ahmed and Mohamed El Morabety in *Contemporary Arab Affairs* in 2022, analyzed the continuous movement of highly educated and experienced Moroccans. The report shows that Moroccan brain drain has risen in recent years. It's skilled migration from low-income to high-income countries. It examined why skilled workers leave the country, what happens when they depart, and how this hinders progress and hurts the economy.

1.1. RESEARCH GAP:

The relationship between migration and human capital development is disputed. Remittances and migrant repatriation may assist society, while other research show that brain drain harms it. Since impacts differ by country educational and economic development, data from many countries must be compared to properly comprehend these complicated processes.

2. The theoretical framework:

2.1. The concept of migration and its developmental impact:

People migrate across or within a country. Economic migration, forced migration, and talent and mind transfer are covered. Migration impacts sending and receiving countries' economy and society beyond demographics. [12] [13].

Current scholarship views migration and inclusive development as dynamic and dialectical. Migration is a major source of national income.. Remittances save households money, boost the economy, and encourage domestic investment. Migration fosters information and cultural exchange, social cohesiveness, and creativity in impacted areas.

Internationally, studies show that migration effectively promotes economic and social development through multiple mechanisms. In addition to remittances, migration contributes to improving infrastructure and creating new jobs in receiving countries. It helps fill labour market gaps and meet specialised skills needs. In the context of sending countries, returning migrants can be a driving force for development, bringing acquired experience and knowledge that contribute to the development of various sectors. Figure (1) shows the productive cycle of migration in the development of human capital, where migration leads to the acquisition of skills and knowledge, which revolves in remittances and investment in education, and finally the transfer of knowledge through the return of migrants or continuous communication, which leads to the development of human capital."

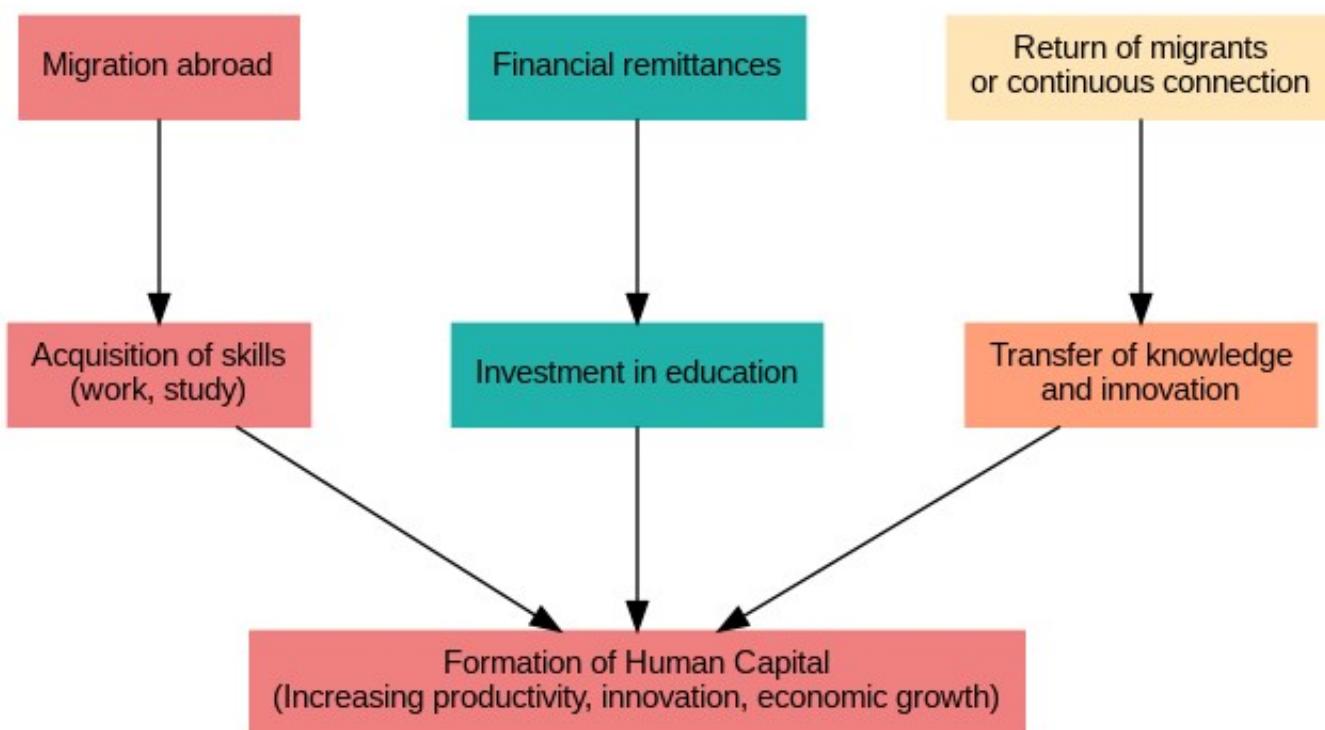


Figure 2. Figure (1) shows the productive cycle of migration in the development of human capital. Source: Prepared by the researchers based on [14] and [15].

International migration, in its diverse dimensions, is an essential driver for the enhancement of financial, material and human resources, contributing to developmental integration between countries of origin and destination. Migration's role in sustainable and equitable development goes beyond economic to social and cultural [14]. [15].

2.2. Theories of Migration:

Migration theories are among the main pillars for understanding the causes and movements of population flows between different regions, as they vary across economic, social, and political factors to explain the motives and forms of migration. The following is a review of the most prominent theories of migration:

1. Push-pull theory is one of the most common theories in explaining migration, as it focuses on the presence of expelling factors in areas of origin, such as poverty, unemployment, conflicts, and lack of basic services, as opposed to attractive factors in receiving areas, such as job opportunities, high living standards, and political stability. Founded by researcher Everett Lee in 1881, he asserted that the decision to migrate depends on the balance between pull and push factors, with migration more likely when the former outweigh the latter.
2. The Cost-Benefit Theory is based on individuals calculating the costs and benefits associated with migration — such as travel costs, employment opportunities, and expected income levels — and migrating when the benefits exceed the costs.
3. The Gravity Model relates the migration process to the size of the economy and the distance between the areas of ejection and attraction. The shorter the distance and the greater the development in the reception area, the greater the migration
4. World Systems Theory treats migration as a consequence of economic globalisation and structural changes in the global economic system, as economic integration drives labour flows from poor to rich countries within the global market.

2.3. Human Capital Concept, Theories:

Human capital is "the stock of knowledge, skills, competencies, and other personality traits that individuals embody and contribute to their ability to perform economically productive work" [16]. This concept, with roots in the work of classical economists such as Adam Smith, was developed into an integrated theory by Nobel laureates Gary Becker and Theodore Shultz [3][4]. They defined human capital, according to the classical economic literature [3], as an investment in individuals through education, training and health, with the aim of enhancing productivity and achieving future returns, similar to physical capital.

The Organisation for Economic Co-operation and Development (OECD) defines it as "the knowledge, skills, competencies

and attributes embodied in individuals that facilitate production processes" [16].

Human capital is fundamental to each person, includes tacit and explicit knowledge, and is inseparable from them. Second, multidimensional education goes beyond formal schooling. Still, it includes practical experience, health that allows economic involvement [17], and social and creative abilities that boost productivity.

2.3. 1. Human Capital Theory:

The human capital theory originated in the 1950s with the work of Theodore Schultz and Gary Becker [3][4], who argued that investing in education and training is like investing in physical capital, improving one's skills and productivity, and thus raising income and economic growth. Schultz positioned human capital as one of the fundamental factors of production, playing a vital role in economic development.

2.4. Migration and Human Capital: The Dialectic of Impact

Migration is linked to the development of human capital through divergent pathways, as it can both positively contribute to its reshaping and negatively weaken it, as shown in Figure (2).

2.4.1. Positive effects:

1. Transfer of skills and experience: Migrants acquire new knowledge in developed labour markets and resettle upon return to their countries of origin [18].
2. Financing education: Remittances are an essential resource for educating children in migrant families [19].
3. Global innovation networks: Migrants form knowledge links between their countries of origin and global research and innovation centres [20].

2.4.2. Adverse effects

1. Brain drain: The loss of qualified competencies negatively affects vital sectors such as education and health [14].
2. Local labour-market dysfunction: Leaving competencies may create a skills gap essential to development.
3. Over-reliance on remittances: May reduce incentives for domestic production and affect economic stability [21].

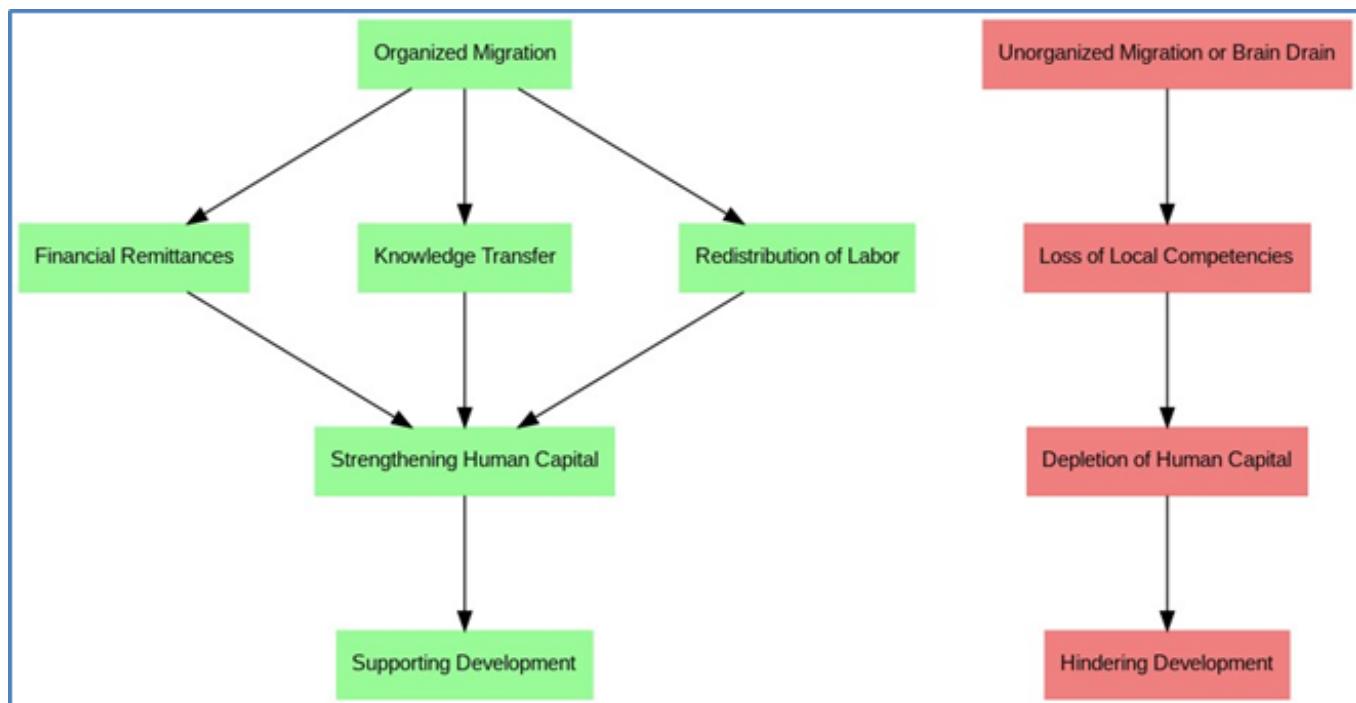


Figure 3. Figure (2) shows the developmental pathways of migration Source: [3]; [4]; [7]; [10].

Figure (2) shows the development pathways of migration as an analytical model that illustrates the disparate effects of migration on development, by distinguishing between two main pathways: a positive pathway associated with organised migration as a lever for development, and a negative pathway as a barrier to development associated with unregulated migration or what is known as "brain drain".

3.1. Kingdom of Morocco:

Migration and development are intertwined in Morocco, as shown by the country's history and geography. MENA revolves around it as its focal point. Remittances from Moroccans working abroad help stimulate the economy and foster social and economic reform. In the past, migration has been a significant contributor to Morocco's economy. According to estimates, about 5 million Moroccans live abroad.

Morocco's economy is stabilised by remittances sent home by Moroccans working abroad. It was a record year for remittances, reaching \$11.7 billion in 2024, which was a 2.1% increase from \$11.5 billion in 2023. This amount accounts for more than 8% of the Kingdom's gross domestic product. It is the Kingdom's primary source of hard currency, surpassing both tourism and direct foreign investment. This flow of money has continued despite the world economy being in this state. They do this by expanding the trade deficit, foreign currency reserves, investment and consumption funds, and other factors that contribute to macroeconomic stability.

After researching the commercial endeavours of Moroccan migrants, it was found that the primary sector — agriculture — and the tertiary sector — services — were the most active sectors for entrepreneurs. According to recent reports, there is a growing push in Morocco to support returning migrants in their economic endeavours, with a particular focus on specific industries. The WAFIRA pilot program equips Moroccan women who have worked in agriculture in Spain with the skills they need to establish their own enterprises and earn more upon returning home. There seems to be an increasing inclination towards agricultural endeavours and small enterprises, as some have started their own rabbit-breeding efforts [1]. Recent studies have examined the impact of migrant entrepreneurs on overall economic growth, thereby facilitating job creation and expanding current employment opportunities.

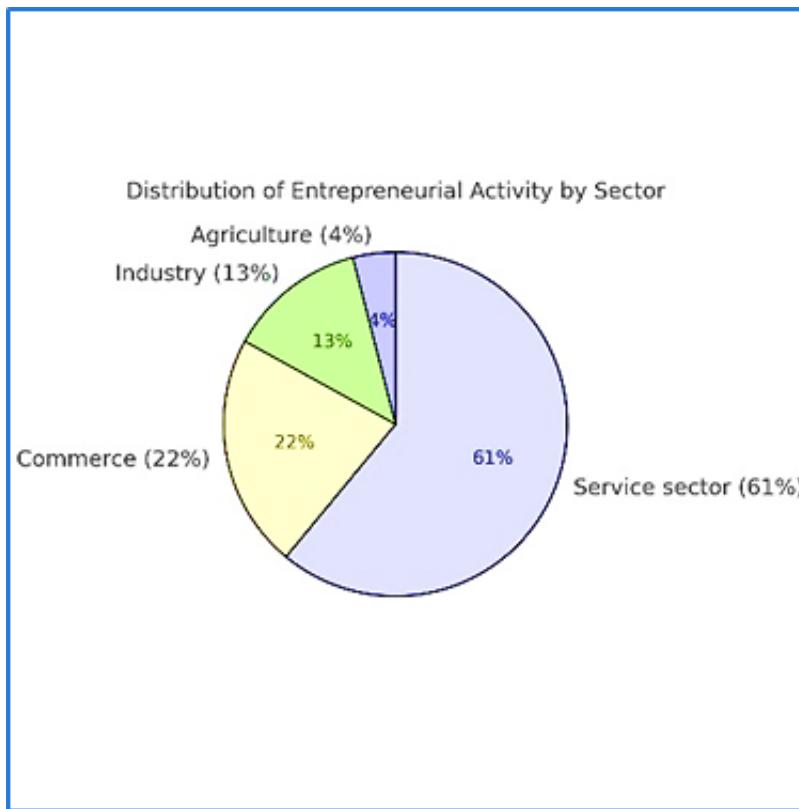


Figure 4. Figure (3) Distribution of entrepreneurial activities of returning migrants in Morocco by economic sector Source: [22].

3.2. The Hashemite Kingdom of Jordan:

Jordan is a unique case study for how migration impacts human capital since it sends and receives numerous migrants and refugees. This dilemma is both a human capital development opportunity and a problem.

Non-Jordanians in Jordan during the last three years demonstrate the problems and opportunities of migration, refugee movements, and development pressures in a resource-constrained country. The Jordanian Department of Statistics and foreign organizations contributed this data. Evolution of this number is in Table (1). This number is significant compared to Jordan's population (10 million in 2020), affecting the economy and people. Labor shortages are filled by migrants, particularly in understaffed areas.

The growth shows that Jordan remains a top forced and economic migration destination. Growing economic and demographic constraints make sustained growth difficult. Statistics predict that non-Jordanian individuals will rise from 2.7 million in 2020 to above 3 million in 2023. Growth will likely end in 2024.

Year	Non-Jordanian population
2020	2.7 million
2023	3.0 million
2024	1.3 million

Table 1. Table (1) Estimates of the non-Jordanian population in Jordan

The huge strain population growth puts on these institutions will damage human capital development and essential services like education and healthcare. Migration and refugees boost Jordan's economy with money, labor, and skills. Sustainable, comprehensive initiatives are needed to locate employment and equal opportunities.

Remittances from Jordanians abroad help preserve currency reserves and create revenue. Central Bank of Jordan, the major source of these figures, believes remittances are expanding and crucial to macroeconomic stability [23].

The first nine months of 2024 saw transfers of 2.64 billion Jordanian dinars, or \$3.7 billion USD, up 3.2% from the previous year. After a solid first quarter of \$863 million in remittances, up 4.2%.

Remittances reached \$3.45 billion in 2023. Figure (4) shows how these fluctuations improve trade and the balance of payments. These data demonstrate their considerable influence on the Kingdom's economy. Their GDP was 9.9% of the Kingdom's that year. These inflows and good macroeconomic policies have helped Jordan's economy weather foreign shocks.

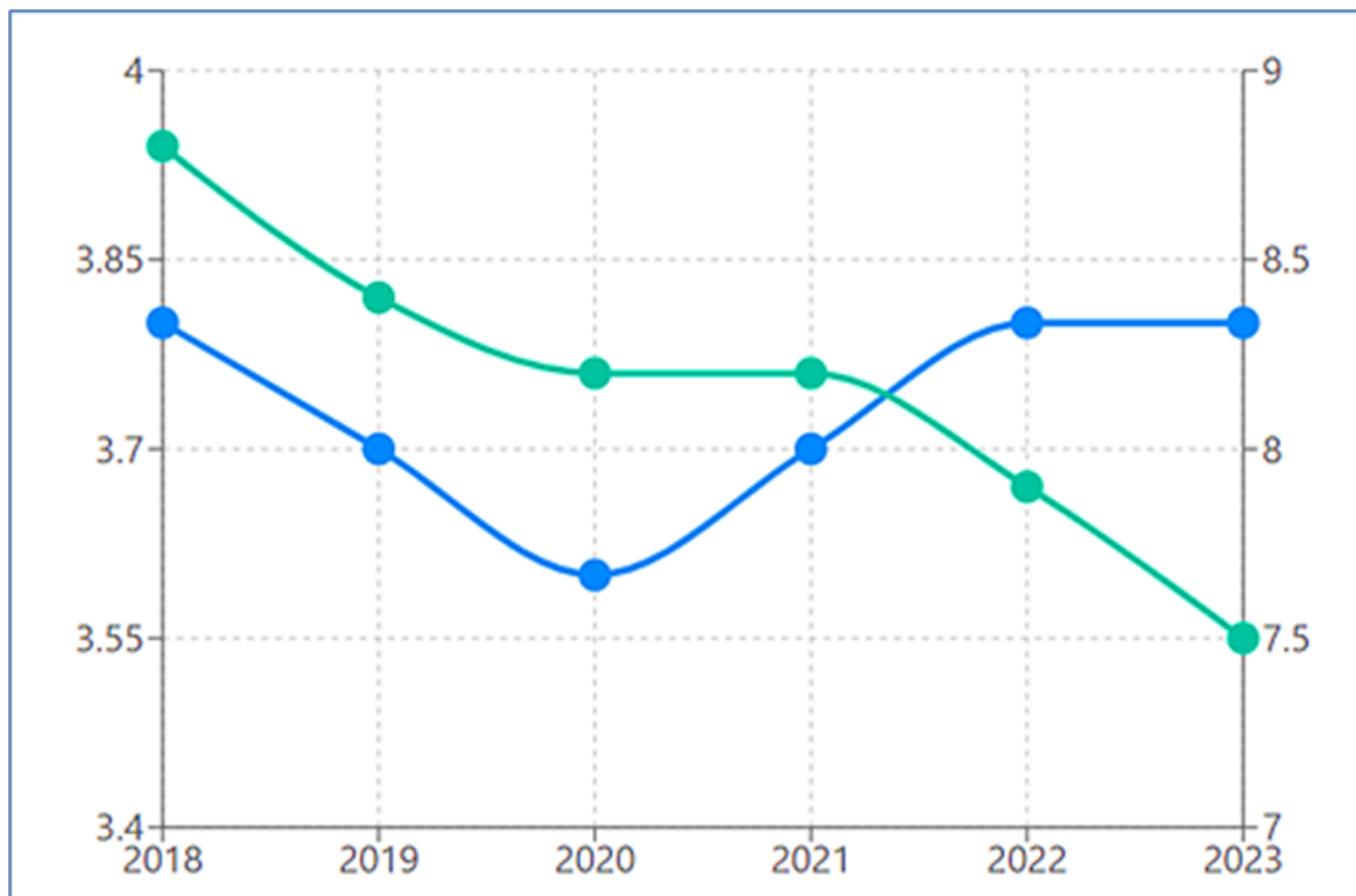


Figure 5. (%) Percentage of GDP □ Amount (billion US dollars) Figure (4) Snub remittances and their deduction from the GDP.

Source: [23]; [24].

Over the last six years, yearly remittances have remained constant at \$3.6 billion to \$3.8 billion. This stability suggests that this resource can resist worldwide disasters like COVID-19. Remittances have been stable, although their share of GDP has declined. This means that GDP has grown faster than remittances in certain years. It is still a large proportion, however, which indicates how important it is to the economy. This statistic shows how important it is for Jordanians residing abroad to

the country's economic progress, both now and in the past.

From a geographical perspective, Saudi Arabia is clearly the most popular destination for Jordanians seeking to migrate. The country has the largest number of Jordanians in the Gulf region, with an estimated 50-55% of all Jordanians living abroad. In 2024, Saudi Arabia accounted for almost half of all remittances sent by Gulf nations, totalling USD 1.468 billion.

There is a diverse group of Jordanians working in Saudi Arabia. Some of them are professors, nurses, and public and private school administrators; others are engineers, technical consultants, and administrative and financial service professionals.

With an estimated 20-25% of Jordanian expats in the Gulf living in the United Arab Emirates, the UAE is the second-most-popular destination for labour from Jordan. In 2024, almost USD 716 million was sent back by UAE nationals. Financial services, engineering, private education (including prestigious international schools and institutes), media, tourism, and engineering are among the high-tech fields where the majority of Jordanians working in the United Arab Emirates are concentrated, especially in the cities of Abu Dhabi and Dubai [23].

There is a growing Jordanian population in Qatar, estimated at 65,000 to 70,000 people. This accounts for around 8-10% of the Jordanian workforce in the Gulf [25]. Qatari remittances reached USD 141.4 million in 2024, an 8.4 per cent rise from the previous year. This growth can be attributed to the increasing demand for Jordanian expertise in key sectors such as education, healthcare, engineering and construction (particularly in relation to Qatar National Vision 2030 projects), and specialised consultancy services. Education accounts for the largest percentage of Jordanian employment in the Gulf region.

The distribution of Jordanians migrating to the Gulf shows sectoral and geographical diversity rather than a uniform phenomenon. The link between talent demand and supply, host-country regulations, and Jordanian migrants' professional reputations is complicated. UAE and Qatar are gaining ground, but Saudi Arabia is still the greatest talent destination. Effective diaspora engagement tactics may result in "brain gain" rather than "brain drain," as demonstrated in Figure 5 [26].

Relative Distribution of Remittances

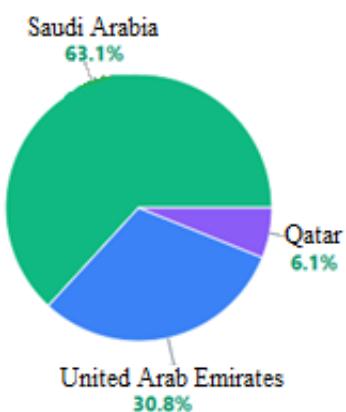


Figure 6. Figure (5): Remittances of Jordanian Workers from Gulf Countries, Financial Data for the Year 2024

Source: [23].

3.3. India: Migration dynamics in India and their developmental impacts:

India's numerous population and diversified environments make it a suitable area to investigate complicated migratory patterns. Migration inside and beyond India is examined in this book to discover its consequences on people, communities, and the economy. Migration within a nation boosts economic growth but hurts human development over time. The Indian diaspora and foreign migration are boosting India's economy via investments, remittances, and knowledge exchange.

India is a great place to study modern migration due of its large population, diverse culture, and strong economy. These factors have hampered local and international migration. These trends harm a nation's growth in various ways.

Between 28-43% of India's population, or 400 million, moves annually. This boosts the economy but slows personal progress [27, 28]. Rural people come to cities seeking better employment, housing, and compensation. Construction, seasonal agriculture, cottage services, and small companies use informal migrant workers, who are crucial to the Indian economy. They increased GDP but cost society a lot.

Reliable evidence shows Indian internal migrants live in terrible conditions. Workers without social security or legal rights

perform long hours for little compensation [28]. Migrant workers risk their health in overcrowded slums without water, sanitation, or power. For years, these obstacles will impede human capital expansion. Genetic poverty and frequent mobility make it hard for migrant children to attend school and get a solid education [28]. Poor health, productivity, and healthcare reduce human capital. Internal migration boosts India's economy but hurts its prosperity.

Migrants succeed economically in India and abroad. Indians are the largest exile group with 18 million [29]. This global presence influences the economy, as seen by enormous money transfers home. India got the most remittances in 2023, \$125 billion [28]. These resources improve Indian families' lives and end poverty. They also encourage SMEs, which boost the economy.

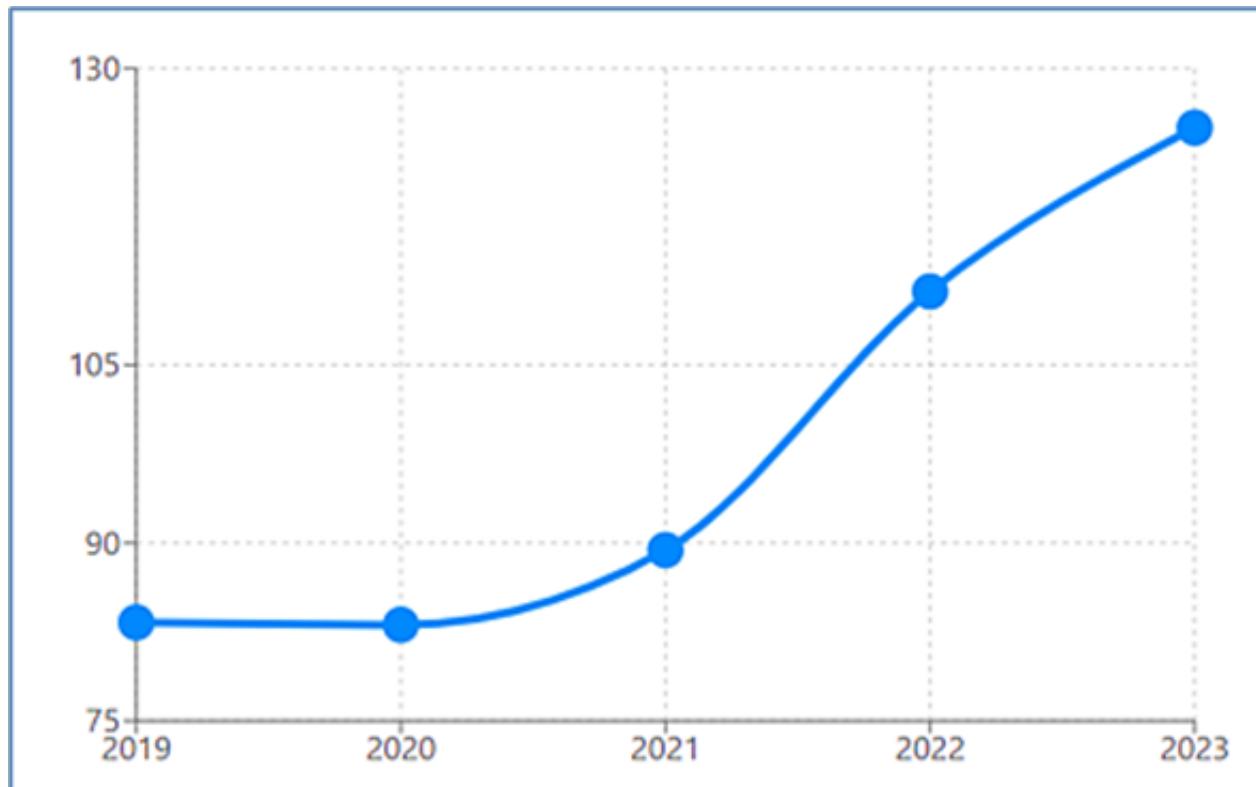


Figure 7. Figure (6) Snub remittances and their deduction from the gross domestic product

Source: [29] [30].

4. Comparative analysis of the repercussions of migration on human capital:

As a result of the research, the dual and complex influence of migration on human capital development was revealed through an analysis of three cases: Morocco, Jordan, and India. This is because the consequences of migration vary depending on a nation's economic structure, migratory flow patterns, and the socioeconomic circumstances of local communities. Empirical results showed that migration contributes positively to enhancing human capital through the accumulation of skills and knowledge acquired by migrants, the transfer of modern knowledge and technologies through professional networks, and remittances, which constitute a strategic source of financing for investment in education and training.

On the other hand, the study identified fundamental challenges represented in the skills drain that weakens the vital sectors in the sending countries, especially in the fields of health, education and technology, with the decline in the quality of human capital as faced by Jordan as an exporting and receiving country for migrants and refugees. Jordan suffers two human capital blows. Different from Morocco and India, who have achieved great progress by using remittances, developing worldwide networks for migrants, and using returnee skills and experience.

Regional cooperation mechanisms to curb migration flows, investment in technical and vocational education, measures to help migrants reconnect with their home countries, and integrated talent retention strategies are vital.

4.1. Variations:

1. India's mobility issues result in a large number of unskilled people. Despite receiving more remittances than any other nation, it makes internal travel difficult.

2. Morocco: On the other hand, it has a lot of issues with individuals moving about inside the nation, which reduces the amount of human capital that a lot of people have. This occurs despite the fact that the country receives the most remittances worldwide.
3. Jordan: As a result of the fact that it simultaneously takes in and sends out migrants (refugees and migrant workers), it generates a one-of-a-kind combination of developmental constraints and opportunities to enhance human capital by bringing together people from diverse cultures and exchanging information. Having said that, this places pressure on both resources and services.

Conclusions and Recommendations

5.1. Conclusions:

There are both possibilities and challenges arising from the dialectical, non-deterministic connection between migration and the development of human capital.

1. Migration causes two things. Poor nations' economy rely on migrant laborers' income. This money improves living circumstances and pays for schooling, strengthening the family's human capital. The "brain drain" of skilled people in education, healthcare, and technology continues.
2. Impact patterns vary: No method works for everyone. Migration's influence on human capital varies widely per country. Even if sending money home is beneficial, India's internal migration problem is human capital loss. Returning migrants are key to information exchange in Morocco, according to this paper.
3. The significance of national policy Current obstacles that decide whether migration is a burden or an opportunity. Connecting with abroad inhabitants, attracting investment, sharing ideas, and making it simpler for migrants to return home are more likely to provide "brain gain" than "brain drain" for a country.

5.2. Recommendations :

1. The research highlights the need of including migration into sustainable development policies to account for geographical and contextual disparities between nations. Effective home-expatriate contact fosters innovation and information exchange. Human capital creation requires addressing refugees, migrants, and social and cultural issues. Finally, the report suggests ongoing, thorough research employing the latest data and in-depth comparisons of rising countries. Global mobility and human capital transformation policies should influence long-term economic and social success.
2. Both nations' economy must improve bilateral agreements for safe and orderly migration ("circular migration"). They come home with new skills and knowledge.
3. To encourage investment from expatriates, remittances should be directed to areas such as education, technology, and information rather than just consumption. Possibly helpful are taxation and financial incentives.
4. Develop methods to retain talent: To prevent talent loss, governments may raise pay and improve working conditions in key sectors, stimulate scientific research, and offer opportunities for professional growth. These are all measures that may be used to retain talent.
5. When addressing migration as a factor in development, it is essential to build a relationship with migrants that is both comprehensive and long-term. There is no question that migrants are significant contributors to a nation's human capital, regardless of where they ultimately settle.

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