# At What Cost? Offshoring Implications for Labor and Migration in Morocco and Tunisia, 2010–2024

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#### Abstract

This paper examines the impact of offshoring in information and communication services on employment and migration in Tunisia and Morocco, two increasingly integrated economies into global production networks. The objective is to assess whether offshoring contributes meaningfully to job creation and influences migration trends in both countries. Using a mixed-methods approach, the study combines empirical analysis of sectoral employment and net migration data with a review of national policies and structural labor market characteristics. The findings reveal that while offshoring has led to some increase in service sector employment, its overall impact on total employment remains limited due to persistent structural constraints and limited integration into knowledge-intensive sectors. Moreover, no significant impact was found on migration rates, due to structural factors such as human development, irregular migration and state policies that actively promote emigration as a means of development. The findings imply that for offshoring to become a more effective lever of development, Tunisia and Morocco must implement policies that foster higher-value employment, invest in skills training, and create more balanced incentives between offshore and onshore investment regimes.

**Keywords:** offshoring, employment, migration, policy impact.

JEL Classification: F66, F68, K31, J68

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## 1. Introduction

Digital globalization and the rise of Information and Communication Technology have reshaped global labor markets, especially via offshore out-

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sourcing, which shifts production across borders. Over time, lower-middle income countries<sup>2</sup> have shifted in the global value chain — from low-skill production of intermediate goods to business services, and more recently, high-skill manufacturing in IT and software development<sup>3</sup>. In the Francophone world, the Maghreb stands out as the top nearshoring destination for French companies, with Morocco and Tunisia emerging as key offshoring hubs<sup>4</sup>. Morocco has notably strengthened its global position, rising 12 places to 28th in the 2023 Kearnev Global Services Location Index. Its focus on digital upskilling has reinforced its role as a strategic hub for tech-driven business services. Supported by government initiatives, Morocco is investing heavily in outsourcing, aiming to create around 5,000 new jobs by 2026. Tunisia, on the other hand, has paid attention to offshoring since 1972, by creating a specific offshoring regime offering tax and duty incentives<sup>6</sup>. From 2010 to 2022, offshore enterprises in Tunisia grew at an average annual rate of nearly 5%. Despite fluctuations like a dip in 2018, the overall trend shows steady growth, underscoring Tunisia's rising appeal as an offshoring hub<sup>7</sup>. The shift of jobs to new offshoring destinations raises critical concerns about labor market impacts, workers' rights<sup>8</sup> and economic migration.

<sup>&</sup>lt;sup>2</sup> Lower-middle-income countries are those included on the Development Assistance Committee list of Official Development Assistance recipients, by the OECD, classified according to their gross national income per capita as reported by the World Bank. See: OECD, ODA recipients: countries, territories, and international organisations: DAC list of ODA Recipients. Online, accessed on April 22, 2025: https://www.oecd.org/en/topics/sub-issues/oda-eligibility-and-conditions/dac-list-of-oda -recipients.html#oda-recipients-list.

<sup>&</sup>lt;sup>3</sup> Arnab K. Basu and Nancy H. Chau (2022), "Offshoring and labor markets in developing countries Lessons learned and questions remaining about offshoring and labor markets in developing countries," IZA World of Labor, No. 499, 2022. doi: 10.15185/izawol.499.

<sup>&</sup>lt;sup>4</sup> José R. López-Cálix, Peter Walkenhorst, and Ndiamé Diop, Trade Competitiveness of the Middle East and North Africa: Policies for Export Diversification, The World Bank, 2010. ISBN: 978-0-8213-8074-1.

<sup>&</sup>lt;sup>5</sup> Kearney, The Global Services Location Index 2023: A New Era of Transformation, 2023. Accessed April 22, 2025. https://www.kearney.com/service/digital-analytics/gsli/2023-full-report.

<sup>&</sup>lt;sup>6</sup> Leila Baghdadi, Sonia Ben Kheder and Hassen Arouri (2019), "Assessing the Performance of Offshore Firms in Tunisia", Journal of Economic Integration, Vol. 34(2), pp. 280-307.

<sup>&</sup>lt;sup>7</sup> Data on the number of offshore enterprises in Tunisia from 2010 to 2022 was collected from the National Institute of Statistics of Tunisia (Institut National de la Statistique), under the section "Number of Enterprises by Regime: Offshore," available at: https://www.ins.tn/. The annual growth rate was calculated as the year-on-year percentage change in the number of offshore enterprises. The compound annual growth rate (CAGR) over the entire period was computed using the formula:  $CAGR = (ending \ value/beginning \ value)^{1/n} - 1$  where the beginning value is 19,269 in 2010, the ending value is 34,317 in 2022, and n=12 years. This results in a CAGR of approximately 4.93%.

<sup>&</sup>lt;sup>8</sup> In this sense, 'labor rights' is used in a generic context, referring to the broader International Labor Standards as developed by the International Labour Organization. Central to these rights are the right to freedom of association and collective bargaining, the elimination of all forms of forced or compulsory labour, the elimination of discrimination in employment, and the right to a safe and healthy working environment.

Competing in the global value chain now exerts strong pressure on governments and private sectors alike to adopt market-friendly policies, often through financial constraints<sup>9</sup>. Economic migration has followed the rise of offshoring, driven by the persistent gap between core countries, where offshoring originates, and host countries<sup>10</sup>. In host countries, governments often establish deregulated economic zones with fiscal incentives to attract foreign investment, resulting in weakened labor protections and social dumping<sup>11</sup>. Cheaper labor costs, along with factors like a country's position in migration chains and its outsourcing regulations, influence its attractiveness to foreign investment, the types of tasks offshored, and the impact on migration profiles. For example, since 2003, Morocco's Labor Code has prioritized investment promotion and export-oriented labor<sup>12</sup>. For Tunisia the offshore regime was supported by various investment regulations, and recently unified in 2016<sup>13</sup>. Despite the growth in offshoring to Morocco and Tunisia and related regulatory reforms, there is limited understanding of how these changes impact labor, migration flows, and policy responses in host countries<sup>14</sup>. Besides, the study of offshoring in North African countries remains limited due to their emerging role as offshoring destinations<sup>15</sup>. Therefore, this research answers the following question to study the impact of offshoring activities in ICT services to Tunisia and Morocco: What are the socioeconomic consequences of

<sup>&</sup>lt;sup>9</sup> Stephen Gill (1998) "New constitutionalism, democratisation and global political economy", *Pacifica Review: Peace, Security & Global Change*, Vol.10 (1), pp. 23-38.

<sup>&</sup>lt;sup>10</sup> Piotr Żuk, "Offshoring, labour migration and neo-liberalisation: nationalist responses and alternatives in Eastern Europe", *The Economic and Labour Relations Review*, No. 2, Vol.31, 2020. DOI:10.1177/1035304620911121.

<sup>&</sup>lt;sup>11</sup> Social dumping describes a situation where companies benefit from weaker labor protections or lower working standards in one country to outcompete others unfairly. It involves sidestepping fair employment practices to cut costs, gaining an advantage in the market by using cheaper labor without respecting proper social or labor norms. The Court of Justice of the EU recognized in different cases potential situations of social dumping and prioritized the right of collective bargaining motivated by combating social dumping over the freedom of establishment and the freedom to provide services. See: Case C-341/05, *Laval un Partneri Ltd. v. Svenska Byggnadsarbetareförbundet and Others*, ECR 2007 I-11767. See also: Matešić, M., Omazić, M.A, (2020) *Social Dumping (CSR)*. In: Samuel Idowu René Schmidpeter, Nicholas Capaldi, Liangrong Zu, Mara Del Baldo and Rute Abreu. *Encyclopedia of Sustainable Management*. DOI: 10.1007/978-3-030-02006-4.

<sup>&</sup>lt;sup>12</sup> Law No. 65-99 relating to the Moroccan Labour Code (Dahir 1-03-194 of 11 September 2003 promulgating the text of the Labour Code).

<sup>&</sup>lt;sup>13</sup> Law n° 2016-71 of September 30, 2016 promulgating the Investment Law, Official Journal of the Republic of Tunisia (*JORT*), No.82, October 10, 2016. Previously different texts regulated investment incentives, but they were modified in 2017. See: Law No. 92-81 of August 3, 1992, establishing economic activity zones, *JORT* No.52, August 7, 1992. Law No. 93-120 of December 27, 1993, promulgating the Investment Incentives Code, *JORT* No. 99, December 28, 1993. Law No. 2017-8 of February 14, 2017, reforming the system of tax benefits, *JORT* No.15, February 2, 2017.

<sup>&</sup>lt;sup>14</sup> Amulya Gurtu, Cory Searcy and M.Y. Jaber (2016), "Effects of offshore outsourcing on a nation", *Sustainable Production and Consumption*, Vol.7, pp. 94-105.

<sup>&</sup>lt;sup>15</sup> Leila Baghdadi, Sonia Ben Kheder and Hassen Arouri, op. cit. (2019), pp. 280-307.

increased offshoring in Tunisia and Morocco, particularly in relation to employment, migration trends, and policy?

Outsourcing refers to delegating specific tasks or functions to an external provider, while offshoring involves relocating business operations to another country, either through a fully owned subsidiary (a captive unit) or by partnering with a third-party provider. While outsourcing decides whether a task should be handled internally or externally, offshoring focuses on whether it should be done domestically or internationally 16. Besides the geographical dimension in defining offshoring, the legal qualification of this business strategy<sup>17</sup> depends on other factors such as on the level of control and partnership between parties. Hence, offshore outsourcing falls under the umbrella of outsourcing, while incorporating a geographical element<sup>18</sup>. The rapid expansion of outsourcing has been largely driven by the commodification of IT services. This has led to specialized outsourcing, where service providers manage specific IT operations like data center administration, client/server infrastructure, and technical support. Defining offshorable tasks is complex due to the diversity of ICT activities. However, the European Foundation for the Improvement of Living and Working Conditions has identified offshorable tasks based on their telemediability. Sectorally, tasks can fall within ICT-producing sectors like data processing and software services, or ICT-using sectors like finance<sup>19</sup>. The determination of tasks on the basis of services is proxied, from the Nomenclature of Economic Activities of the European Union, by NACE sector K.72 relevant to computer related activities and sector K.74 related to other business activities<sup>20</sup>. Research on outsourcing has

<sup>&</sup>lt;sup>16</sup> Ajay Sharma, Patricia Loh (2009), "Emerging trends in sourcing of business services", *Business Process Management Journal*, Vol. 15 (2), pp. 149-165, https://doi.org/10.1108/14637150910949 425.

<sup>&</sup>lt;sup>17</sup> Outsourcing has become an essential business strategy in response to globalization and increasing market competition. Companies are constantly seeking ways to enhance efficiency, reduce costs, and adapt to rapidly evolving consumer demands. The growing complexity and expense of developing and managing information systems, coupled with the need for highly specialized skills, make outsourcing a practical solution. By delegating certain operations to third-party providers, especially in developing countries with abundant human capital, businesses can cut costs, accelerate project timelines, and focus on their core strengths. Globalization has also contributed to lowering barriers to international competition, leading to cost savings in production and distribution. This strategy not only reduces overhead costs but also allows businesses to diversify their product and service offerings, increasing flexibility in a competitive market. See: Victor-Adrian Troacă, Dumitru-Alexandru Bodislav (2012), "Outsourcing: The Concept", *Theoretical and Applied Economics*, Volume XIX, No. 6(571), pp. 51-58.

<sup>&</sup>lt;sup>18</sup> Sreedevi R., Tushar Tanwar (2018) "Outsourcing – A Review for Research and Practical Applications", *International Journal of Business and Economics Research*, Vol. 7 (1), pp. 20-24.

<sup>&</sup>lt;sup>19</sup> Ursula Huws, Simone Dahlmann, *Outsourcing of ICT and related services in the EU: A status report, Foundation for the Improvement of Living and Working Conditions*, Office for Official Publications of the European Communities, 2004. ISBN 92-897-0906-5.

<sup>&</sup>lt;sup>20</sup> European Commission. *NACE Codes Used in Merger Cases*. Accessed April 22, 2025. https://ec.europa.eu/competition/mergers/cases\_old/index/nace\_all.html.

been developed around focal questions, such as the factors that encourage and weaken outsourcing, the object and the extent of it, the type of this operation (i.e.: whether captive firms or offshore third-party), and the outcomes of offshore outsourcing<sup>21</sup>. The study of these outcomes includes, first, the offshoring decision, regarding the location<sup>22</sup>, and factors like political and regulatory conditions that might influence these decisions besides the competences availability<sup>23</sup>. The impact of offshoring in the literature was addressed in the context of job creation and brain drain<sup>24</sup>, besides concerns about the role of working conditions, inequality of income, and the development of poverty in various countries<sup>25</sup>. Research on offshoring economies consistently shows uneven labor market effects. Highskilled workers may benefit or remain unaffected, while medium- and low-skilled workers often face job displacement or wage pressures<sup>26</sup>. Offshoring and migration have been studied as globalization results that impact labor market outcomes<sup>27</sup>. Key axes, in this regard, include the productivity effect, which refers to productivity gains in complementary roles due to offshored job losses, and the displacement effect. Another outcome in the offshoring and migration literature is the task sustainability effect, where natives and offshore workers perform either similar or complementary tasks<sup>28</sup>.

This study contributes to the literature by focusing on the underexplored perspectives of host countries in lower-to-middle-income regions, specifically Tunisia and Morocco. Unlike previous research, which centers on home-country labor market effects, this paper examines how offshoring reshapes employment and migration trends in host economies. By combining macroeconomic indicators with sociological analysis, it provides an interdisciplinary framework for understanding offshoring's broader societal impacts. Additionally, it addresses the

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<sup>&</sup>lt;sup>21</sup> Nada Kakabadse, Andrew Kakabadse (2000), "Critical review – Outsourcing: a paradigm shift", *Journal of Management Development*, Vol. 19 (8), pp. 670-728.

<sup>&</sup>lt;sup>22</sup> Carmen Stoian and Fragkiskos Filippaios (2008), "Dunning's eclectic paradigm: A holistic, yet context specific framework for analysing the determinants of outward FDI: Evidence from international Greek investments", *International Business Review*, vol. 17(3), pp. 349-367, https://doi.org/10.1016/j.ibusrev.2007.12.005.

<sup>&</sup>lt;sup>23</sup> Kearney, *Global Services Location Index (GSLI)*, Accessed April 22, 2025. https://www.kearney.com/service/digital-analytics/gsli.

<sup>&</sup>lt;sup>24</sup> Habibullah Khan & M. Shahidul Islam (2006), *Outsourcing, Migration, and Brain Drain in the Global Economy: Issues and Evidence*, U21Global Working Paper No. 004, Available at SSRN: https://ssrn.com/abstract=1606106 or http://dx.doi.org/10.2139/ssrn.1606106.

<sup>&</sup>lt;sup>25</sup> Peter Auer, Geneviève Besse and Dominique Méda (eds.), *Offshoring and the Internationalization of Employment, A challenge for a fair globalization?*, Proceedings of the France ILO Symposium, 2005, https://www.ilo.org/media/323091/download, accessed April 22, 2025.

<sup>&</sup>lt;sup>26</sup> Christian Keuschnigg and Evelyn Ribi (2009), "Outsourcing, unemployment and welfare policy", *Journal of International Economics*, Vol. 78 (1), pp.168-176.

<sup>&</sup>lt;sup>27</sup> Beverelli Cosimo, Orefice Gianluca and Nadia Rocha (2011), "Offshoring and Migration in a World with Policy Spillovers", SSRN Electronic Journal, DOI:10.2139/ssrn.1946979.
<sup>28</sup> Ibid.

interconnected dynamics between offshoring, employment, and migration, which are often studied in isolation, while grounding the analysis in the specific regulatory frameworks and labor/migration profiles of these countries.

The study is divided into four sections. The introduction presents the background, scope, and contributions relative to existing literature. The main body includes two sections analyzing offshoring's impacts on employment and migration in the ICT sector, with theoretical and empirical background, data description, descriptive statistics, regression analysis, and a discussion of results. The conclusion summarizes findings, highlights policy implications, and discusses the potential benefits and drawbacks of offshoring in both contexts. To assess the impact of offshoring on labor and migration outcomes in Morocco and Tunisia (2010-2024), the study uses a mixed-methods approach combining descriptive and qualitative data analysis. Quantitative data from UNCTAD, ILO, and the World Bank cover indicators related to trade in services, foreign direct investment, employment, and migration. Due to a lack of direct offshoring measures, ICT service exports are used as a proxy. Two fixed-effects panel regressions are applied: one for employment in services, and the other for net migration, controlling for macroeconomic and demographic variables such as inflation, minimum wage, and technology readiness. This analysis offers a comparative evaluation of how digital offshoring impacts domestic labor markets and migration in the two countries, supported by contextual analysis of regulatory frameworks and literature triangulation.

# 2. Theoretical background

In Global Value Chains, firms operate within integrated networks, where each production stage is done where it's most efficient. Offshoring boosts this modularity by optimizing operations across borders for cost efficiency, talent, and innovation<sup>29</sup>. Countries' competitiveness is now measured not only by export performance but also by their integration into global production networks. Offshore zones play a key role, offering legal, fiscal, and administrative incentives to attract foreign capital, driven by labor and regulatory arbitrage<sup>30</sup>. Neoclassical theories of a unified labor market fail to capture today's market dynamics. Instead, the labor market can be seen as a decentralized network where firms and job seekers independently connect. Studies on offshoring and unemployment often use search and matching models, particularly the Pissarides framework of equilibrium unemployment<sup>31</sup>. Theoretical extensions of search-and-matching

<sup>&</sup>lt;sup>29</sup> Bjoern Schmeisser (2013), "A Systematic Review of Literature on Offshoring of Value Chain Activities", *Journal of International Management*, Vol.19 (4), pp 390-406.

<sup>&</sup>lt;sup>30</sup> Zoriana Lutsyshyn, Tetiana F. Rolova, Nina Yuzhanina, Mykola Mazur, Dmytro Perebyinis (2019), *International Economic Policy*, Vol. 30(1), pp. 70-111.

<sup>&</sup>lt;sup>31</sup> Christopher A. Pissarides (2000), Equilibrium Unemployment Theory, 2<sup>nd</sup> edn., The MIT Press,

models show that labor market institutions, like collective bargaining, recruitment costs, and social protection, can influence how offshoring impacts wages and unemployment<sup>32</sup>. Grossman and Rossi-Hansberg's task-based framework identifies three interconnected channels through which offshoring impacts employment: productivity, relative price, and labor supply effects. Offshoring low-skill tasks can reduce production costs and boost domestic labor demand in the short term, but this is offset by global competition, which lowers prices and wages. Additionally, displaced low-skilled workers may flood the labor market, further depressing wages. These effects are uneven, benefiting high-skilled workers while burdening low-skilled workers with greater adjustment costs<sup>33</sup>.

To assess offshoring's impact on migration, the literature often starts with traditional trade theory. In models like Heckscher-Ohlin and Samuelson's extension, labor is assumed immobile across borders. A labor-rich country specializes in exporting labor-intensive products, and the Factor-Price Equalization theorem suggests that, under free trade, factor prices (wages and returns to capital) converge across countries, even without migration. In this view, trade in goods mimics labor movement, and migration is seen as another channel for achieving factor price convergence<sup>34</sup>. However, this model fails to predict the size and composition of migrant flows, especially given the complexity of modern migration. In contrast, Harris and Todaro's neoclassical migration theory argues that migration is driven by expected income, considering job probabilities. The model suggests migration occurs when expected urban income exceeds rural earnings, even with urban unemployment<sup>35</sup>. In a broader framework, dual labor market theory suggests migration is driven not by individual cost-benefit analysis but by structural needs in advanced economies. Richer countries have a segmented labor market: a stable, well-paid primary sector and a secondary sector with low wages, instability, and poor conditions. Native workers avoid these secondary jobs, creating persistent demand for migrant labor<sup>36</sup>. Over time, migration becomes self-reinforcing through diaspora formation. According to causation theory, as more people from a community migrate, social networks reduce mi-

ISBN: 9780262161879, p. 75.

<sup>&</sup>lt;sup>32</sup> Priya Ranjan (2013), "Offshoring, unemployment, and wages: The role of labor market institutions", *Journal of International Economics*, Vol. 89(1), pp. 172-186.

<sup>&</sup>lt;sup>33</sup> Gene M. Grossman and Esteban Rossi-Hansberg (2008), "Trading Tasks: A Simple Theory of Offshoring", *American Economic Review*, Vol. 98 (5), pp. 1978-1997.

<sup>&</sup>lt;sup>34</sup> George J. Borjas (1989), "Economic Theory and International Migration", *The International Migration Review*, Vol. 23(3), pp. 457–85.

<sup>&</sup>lt;sup>35</sup> John R. Harris and Michael P. Todaro (1970), "Migration, unemployment and development: A two-sector analysis", *American Economic Review*, Vol.1(60), pp. 126–142.

<sup>&</sup>lt;sup>36</sup> Piore, M. J. (1970), *Birds of passage: Migrant labor and industrial societies*. Cambridge: Cambridge University Press. 1970, p. 82.

gration costs and risks, creating a feedback loop that sustains and expands migration flows, regardless of initial economic conditions<sup>37</sup>.

In conclusion, task-based models focus on labor shifts and wage dynamics, while migration theories emphasize the role of economic and institutional forces. In Morocco and Tunisia, these dynamics are influenced by labor markets, offshore policies, and regional migration. The next sections use panel data and qualitative analysis to assess ICT offshoring's labor and migration outcomes in both countries from 2010 to 2024.

## 3. Data and Methods

Data for both countries from 2010 to 2024 is collected from secondary sources, covering labor, employment, migration, demographics, and macroeconomic indicators. This data is used for descriptive statistical and regression analysis. Two separate regressions were applied: Fixed Effects for employment, to account for differences between entities, and Pooled OLS for migration, due to limited variation between countries. **Tables 1** and **2** are a specification of the indicators used, their sources, and rationale

Table 1: List of indicators to measure the impact of offshoring on Employment in services

Variables	Indicators	Source	Justification	
Dependent variable	Employment in services (% of total employment)	International Labour Organization modelled estimates database.	Represents shifts in labor toward services as a result of offshoring.	
Independent Variables	Exports in telecom- munication, com- puter and infor- mation services as % of GDP	UNCTADstat	Proxy for offshoring in the ICT sector.	
	Inward FDI as % of GDP	UNCTADstat	Represents foreign involvement in the economy.	
Control Variables	Frontier tech readiness index	UNCTADstat	Measures countries' capabilities to adopt and benefit from digital services.	

<sup>&</sup>lt;sup>37</sup> Hein de Haas (2021) "A theory of migration: the aspirations-capabilities framework", *Comparative Migration Studies*, Vol 9(8), https://doi.org/10.1186/s40878-020-00210-4.

Inflation, consumer prices	World Bank	Controls for macroeco- nomic volatility affect- ing labor markets.
		4

Source: Author's conceptualization

Given the limited cross-sectional variation in the panel data, the regression model choice was based on comparing Fixed Effects with a Pooled OLS model. The Fixed Effects "Within" Estimator was used, and an F-test assessed the joint significance of cross-sectional effects. The F-test compares the restricted Pooled OLS model without country-specific effects, to the unrestricted model with Fixed Effects, determining if unobserved heterogeneity across countries is significant. This was implemented in *RStudio* using the *pFtest()* function from the *plm* package, with the output F-statistic, degrees of freedom, and p-value reported below.

Table 2: List of indicators to measure the impact of offshoring on Net Migration

Variables	Indicators	Source	Justification	
dependent variable	Net migration rate	World Bank	Represents the overall migration balance	
Independent Variables	Exports in tele- communication, computer and in- formation services as % of GDP	UNCTADstat	Proxy for offshoring in the ICT sector	
	Inward FDI as % of GDP	UNCTADstat	Represents foreign involvement in the economy.	
Control Variables	unemployment rate	ILOSDG Labour Market Indicators	Captures labor market pressures that may push emigration	
	real minimum wage <sup>38</sup>	ILOSDG and World Bank	Captures purchasing	

<sup>&</sup>lt;sup>38</sup> Real minimum wage was calculated by the author through nominal minimum wage data collected from 2010 – 2023 for Tunisia and Morocco from ILOSTAT, adjusted to purchasing power. Purchasing power is represented by Inflation, consumer prices (annual %) data from the World Bank data portal for the same period. Real minimum wage = nominal minimum wage / (1+ inflation/100).

		power and wage pressure on low-skilled labor
Human Development Index	UNDP	Reflects development conditions

Source: Author's conceptualization

The small p-value (p < 0.05) in the employment regression test leads to rejecting the hypothesis of no individual effects, supporting the use of a Fixed Effects model due to significant unobserved heterogeneity. However, in the migration test, the p-value (p > 0.05) is marginally significant, indicating no rejection of the Pooled OLS model.

**Table 3**: F-test for individual effects results (Fixed Effects vs. Pooled OLS)

Model	Test	F Statistic	p-value
Employment outcomes	F test for individual effects (1, 22)	26.539	0.0000365
Migration outcomes	F test for individual effects (1, 21)	3.4394	0.07776

Source: Author's calculation

#### 4. Results

Offshoring decisions are largely driven by cost-effectiveness, with Tunisia and Morocco standing out as attractive destinations due to their low labor costs, offering a comparative advantage over other emerging hubs like those in Central and Eastern Europe<sup>39</sup>. Between 2010 and 2023, labor costs in Morocco were higher, with real minimum wages in Tunisia averaging 53.41% lower than those in Morocco<sup>40</sup>. Other factors, such as labor force growth, also make both countries attractive for offshoring. From 2010 to 2024, Morocco's labor force

<sup>&</sup>lt;sup>39</sup> Zoltán Gál (2014) "Relocation of Business Services into Central and Eastern Europe (Evidence from Trade and Location Statistics)", *Romanian Review Of Regional Studies*, Vol. X(1), pp. 67-78. <sup>40</sup> Based on the author's calculation of percentage difference of real minimum wage of Tunisia compared to Morocco from 2010 - 2023. The average is the sum of the percentage difference divided by the number of years.

grew by 9.4%, while Tunisia's grew by 9.72%<sup>41</sup>. Both economies have focused on export-led growth and improved infrastructure for ICT adaptation and digital transitions. From 2010 to 2023, ICT services exports exceeded imports, with the exception of Tunisia in 2021-2022. Morocco has also implemented strategic measures to boost digital transformation and offshoring in ICT, including the creation of the Digital Development Agency and the National Commission for Data Protection. National digital strategies like 'Maroc Numeric 2013' and 'Maroc Digital 2020' highlight Morocco's aim to lead North Africa in digital development<sup>42</sup>. Tunisia has implemented similar policies, with significant ICT sector growth driven by the Smart Tunisia strategy (2015) and the National Strategy for Digital Transformation 2021-2025, aiming to foster IT innovation and address graduate unemployment. A key development is the Elgazala Technopark, the first in Tunisia and North Africa, which hosts multinational corporations like Alcatel, Ericsson, Huawei, and STMicroelectronics, with most of its production being exported<sup>43</sup>.

While there is no direct measure of offshoring intensity in Tunisia and Morocco, growth in telecommunication, computer, and information services exports signals rising demand for digitally deliverable services, often provided by offshore enterprises. The upward trend in ICT exports serves as a proxy for offshoring expansion, with increasing inward investment reflecting the growing importance of ICT in international trade, as shown in **Figure 2.** 

Despite growth in ICT service exports and FDI inflows, both countries continue to face high unemployment. From 2010 to 2024, Tunisia consistently had a higher unemployment rate than Morocco, with an average difference of 6%<sup>44</sup>. This signals structural labor market issues, as Tunisia's real minimum wage is nearly half that of Morocco's, averaging 53.41% lower<sup>45</sup>. Demographic data shows both countries are net exporters of emigrants, with high negative net mi-

<sup>&</sup>lt;sup>41</sup> Labor force averages were calculated using yearly data from 2010 to 2024 for Morocco and Tunisia from the World Bank, World Development Indicators database. Annual growth rates were derived by calculating the year-over-year percentage change in the labor force for both countries.

<sup>&</sup>lt;sup>42</sup> MAA Fettouma (2023) "Digitalisation et développement des métiers de l'offshoring au Maroc: Essai de Modélisation", *Revue Française d'Economie et de Gestion*, Volume 4(2), pp. 376 - 395, ISSN: 2728-0128.

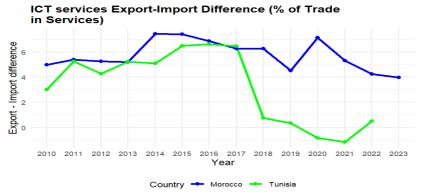
<sup>&</sup>lt;sup>43</sup> République Tunisienne, Ministère des Technologies de la Communication, *Espace investisseurs: Infrastructures*. Online accessed on April 30, 2025: Infrastructures – Espace investisseurs – Open Data – Ministère des technologies de la communication et de l'economie numérique.

<sup>&</sup>lt;sup>44</sup> Average unemployment difference calculated by the author from the difference between unemployment rates between Tunisia and Morocco based on ILOstat data for the selected period.

<sup>&</sup>lt;sup>45</sup> Based on the author's calculation of percentage difference of real minimum wage of Tunisia compared to Morocco from 2010 - 2023. The average is the sum of the percentage difference divided by the number of years.

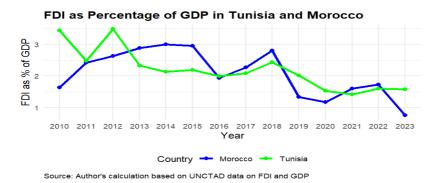
gration rates. Between 2010 and 2023, Tunisia's net migration rate was on average 62.28% more negative compared to its combined migration rates<sup>46</sup>. This suggests lower emigration from Tunisia compared to Morocco, possibly indicating higher immigration inflows. Additionally, from 2010 to 2023, Tunisia's Human Development Index was on average 9.38% higher than Morocco's<sup>47</sup>, reflecting relatively stronger performance in health, education and income over time.

Figure 1:



Source: The author's calculation based on UNCTAD data on exports and imports by service category

Figure 2:



To assess offshoring's impact on service employment, a fixed effects regression model was estimated using panel data for Morocco and Tunisia (2010-

<sup>&</sup>lt;sup>46</sup> Based on the author's calculation of difference percentages of net migration rate data of Tunisia opposed to Morocco, as collected from the World Bank database, from 2010 to 2023.

<sup>&</sup>lt;sup>47</sup> Based on the author's calculation of HDI difference percentage between Morocco and Tunisia from 2010-2023, based on data from UNDP.

2023), with service employment (% of total) as the dependent variable. The results in **Table 4**, show that ICT exports have a strong, statistically significant positive effect on service employment, indicating that increased offshoring in ICT boosts service sector jobs. In contrast, FDI inflows are negatively associated with service employment, suggesting the importance of non-service sectors. The Frontier Technology Readiness Index also positively impacts service employment, highlighting that digital preparedness supports labor absorption in services. Overall, the model explains 81% of employment variation, reinforcing the idea that digital offshoring and technological readiness drive service sector employment.

**Table 4**: Fixed effects regression model results relative to employment in services

Variables	Coefficient		Robust Std. Error	t-value		Prob.
Exports in tele- communica- tion, computer and information services as % of GDP	5.094		(0.594)	8.58		1.8e-08
Inward FDI as % of GDP	-1.062		(0.306)	-3.47		0.002
Frontier tech readiness index	17.988		(7.214)	2.49		0.020
Inflation	0.293		(0.006)	48.28		2.2e-16
Model Summary						
R <sup>2</sup> = 0.808 Adjus		ted $R^2 = 0.765$	F-ratio =		23.20	

Source: Author's calculation

On the other hand, to assess the impact of offshoring and employment indicators on migration, a Pooled OLS model was applied for both countries for the same period, with 'net migration rate' as a dependent variable. The model explains approximately 76% of the variation in the net migration rate and supports the large impact of human development index on net migration rates, indicating that improvements in development are strongly associated with less negative rates, which means less emigration. Exports in ICT related services and unemployment as well as real minimum wage do not seem to have an explanatory

power in their relationship to net migration rates, indicating that migration decisions in this context are more sensitive to broader development indicators than to short-term economic or labor market factors, as shown in **Table 5**.

In conclusion, the models indicate that ICT offshoring, as measured by exports of telecommunication, computer, and information services, has a positive and statistically significant effect on employment in services in both countries. This suggests that greater integration into global production chains in the ICT services sector is linked to job growth in services. In contrast, migration seems to be more influenced by structural factors rather than ICT services trade, as no significant relationship was found between the offshoring proxy and net migration rates.

**Table 5**: Pooled OLS regression results relative to net migration rate

Variables	Coefficient		Robust Std. Error		t-value	Prob.
Exports in telecommunication, computer and information services as % of GDP	-0.34		18.82		-0.02	0.986
Inward FDI as % of GDP	-3.	26	8.54		-0.38	0.708
Unemployment Rate	0.71		0.15		4.79	< 0.001
Real Minimum Wage	-0.06		0.07		-0.90	0.380
HDI	338.51		6.68		50.69	< 0.001
Model Summary						
$R^2 = 0.869$ Adjusted $R^2$		= 0.765	F-	F-ratio = 19.97		

Source: Author's calculation

# 5. Discussion and contextual analysis

To fully interpret the empirical findings, it is crucial to contextualize them within the broader regulatory, policy, and socioeconomic environments of Morocco and Tunisia. The increasing tradability of services and the emergence of both countries as regional offshoring hubs underscore the importance of institutional frameworks in shaping these dynamics. Since gaining independence, both countries have pursued trade with key milestones like the Association Agreements with the European Union, which facilitated greater economic cooperation and market access<sup>48</sup>. Today, more than half of Morocco's and Tunisia's trade is conducted with the EU<sup>49</sup>. Currently, the two countries are aware of their position in international production chains, aiming to fortify their attractiveness and at the same time reach their development goals through setting different criteria to control investment flows, such as defining sectors of economic priority, assuring job creation as well as equal distribution of regional development<sup>50</sup>. The legal definitions of investments in both countries, while focused on national development, differ. In Morocco, the focus is on project- and production-centered perspectives, emphasizing tangible conditions for goods or services production and job creation<sup>51</sup>. The Tunisian legislator focuses more on the border economic development with the condition of risk assessment and recognizes two forms of investment: direct and participation investments<sup>52</sup>. This indicates that Tunisia's legal framework accommodates a broader range of foreign investments, whether capital- or labor-intensive. Both Tunisia and Morocco have competitive tax incentives for attracting investors, though with some differences. Tunisia's Tax Incentives Law No. 2017-8 offers a full exemption from corporate income tax on export-derived profits for the first year, with a gradual deduction to 25% by the fourth year<sup>53</sup>. Comparatively, Morocco grants exporting companies — excluding scrap metal dealers — a reduced corporate income tax (CIT) rate of 20%, or 10%

 $<sup>^{48}</sup>$  Euro-Mediterranean Agreement, establishing an association between the European Communities and their Member States, of the one part, and the Kingdom of Morocco, of the other part, Official Journal L 070,  $18/03/2000,\,p.\,0002$ - 0204. Euro-Mediterranean Agreement establishing an association between the European Communities and their Member States, of the one part, and the Republic of Tunisia, of the other part, OJ L 97, 30.3.1998, p. 2–183.

<sup>&</sup>lt;sup>49</sup> European Commission, "EU Trade Relations with Morocco," European Commission, Trade and economic security, accessed on April 30, 2025, https://policy.trade.ec.europa.eu/eu-trade-relation ships-country-and-region/countries-and-regions/morocco\_en. *See also*: European Commission, "EU Trade Relations with Tunisia," European Commission, Trade and economic security, accessed on April 30, 2025, https://policy.trade.ec.europa.eu/eu-trade-relationships-country-and-region/countries-and-regions/tunisia\_en.

<sup>&</sup>lt;sup>50</sup> Dahir n° 1-22-76 du 14 journada I 1444 (9 décembre 2022) portant promulgation de la loi-cadre n° 03-22 formant charte de l'investissement, Royaume du Maroc, Bulletin Officiel n° 7152 du 20 journada I 1444 (9 décembre 2022), p 2089: Article 1. *See also*: Loi n° 2016-71 du 30 septembre 2016, portant loi de l'investissement, Jort n° 82 du 7 octobre 2016, Article 1.

<sup>&</sup>lt;sup>51</sup> Décret n° 2-23-1 du 25 rejeb 1444 (16 février 2023) relatif à la mise en œuvre du dispositif de soutien principal à l'investissement et du dispositif de soutien spécifique applicable aux projets d'investissement à caractère stratégique, Bulletin Officiel № 7174 − 9 chaabane 1444 (2-3-2023), pp 762-767.

<sup>&</sup>lt;sup>52</sup> Loi n° 2016-71 du 30 septembre 2016, portant loi de l'investissement, Jort n° 82 du 7 octobre 2016, Article 1.

<sup>&</sup>lt;sup>53</sup> For tax incentives specifications in Tunisia see: Loi n° 2017-8 du 14 février 2017, portant refonte du dispositif des avantages fiscaux, Chapitre IV Avantages fiscaux, sous-section V - Entreprises nouvellement créées.

for lower net profits. Exported goods and services are fully exempt from VAT, with deductions allowed if supported by proper documentation. Additionally, firms in Industrial Acceleration Zones enjoy a five-year CIT exemption, followed by a fixed 15% rate<sup>54</sup>. Tunisia also offers a preferential regime in economic activity parks, granting full income and corporate tax exemptions on export-related earnings for the first ten years. Firms benefit from reduced VAT, duty-free import of equipment, and may sell up to 30% of their prior year's exports locally. Exporting firms are further exempt from standard procedures when hiring foreign managers or specialists<sup>55</sup>. These export-oriented regimes help explain the rise in offshoring-related exports in both Tunisia and Morocco. However, their differing investment approaches — Morocco's focus on tangible job creation versus Tunisia's broader development goals — lead to variations in labor market outcomes and competitiveness. As both countries aim to reduce regional disparities and strengthen their position in global value chains, they tend to attract offshoring in labor-intensive sectors like textiles and manufacturing, rather than in knowledgeintensive ICT services. This aligns with the empirical finding of limited impacts from ICT offshoring and FDI on employment indicators. Moreover, generous tax incentives and export-driven strategies risk triggering a 'race to the bottom,' potentially fostering informal employment and undermining broader socioeconomic goals<sup>56</sup>. For instance, labor markets in Tunisia and Morocco know high informal employment rates, especially in Tunisia. The causes of this phenomenon can vary due to local regulations and systems, but both countries struggle with poor access to credit and judicial inefficiencies, making it difficult for small firms to scale or integrate into formal value chains<sup>57</sup>. Therefore, other control factors, relative to the labor market challenges and social security systems indirectly impact offshoring success in these countries due to limited productivity and informality gaps. Despite lower labor costs, these structural issues make North Africa less competitive compared to regions like Central and Eastern Europe, where institutional conditions are more conducive to sustainable offshoring.

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<sup>&</sup>lt;sup>54</sup> Ministère de l'économie et de finances et de la réforme de l'administration, Dispositif d'Incitations fiscales, 2021. Accessed on April 30, 2025: https://marocpme.gov.ma/wp-content/uploads/20 21/12/MEFRA Dispositif-dincitations-fiscales 2021.pdf.

<sup>&</sup>lt;sup>55</sup> Loi n° 93-120 du 27 décembre 1993, portant promulgation du code d'incitations aux investissements, Titre III: Les Incitations À L'exportation, Chapitre I Régime Totalement Exportateur, Article 10 - Article 20.

<sup>&</sup>lt;sup>56</sup> Empirical studies support that informal employment results from more market liberalization coupled with insufficient state intervention in safeguarding workers' social rights. *See*: Colin C. Williams (2015), "Tackling informal employment in developing and transition economies: a critical evaluation of the neo-liberal approach", *International Journal of Business and Globalisation*, Vol. 14(3), pp. 251- 268.

<sup>&</sup>lt;sup>57</sup> Gladys Lopez-Acevedo, Marco Ranzani, Nistha Sinha, and Adam Elsheikhi, *Informality and Inclusive Growth in the Middle East and North Africa*, World Bank Group, Middle East and North Africa Development Report. Accessed on April 30, 2025. https://openknowledge.worldbank.org/server/api/core/bitstreams/8efcf7a6-3832-4e94-b826-cabc81be92d2/content.

While the impact of offshoring on employment is empirically supported and moderated by structural labor market challenges, the empirical analysis did not reveal a statistically significant relationship between offshoring and net migration rates. Instead, the findings align with existing literature that highlights the stronger influence of broader structural factors, unemployment and economic opportunity, on individuals' decisions to migrate. In the case of Tunisia and Morocco, migration patterns are also shaped by demographic and historical ties to Europe. Tunisia's higher literacy and education levels contribute to skill-based migration and brain drain, while Morocco's migration is more influenced by socioeconomic pressures such as youth unemployment and urban growth<sup>58</sup>. More recently both countries are becoming a transit destination for sub-Saharan migrants. These changes in migration patterns coupled with the need of cooperation with the EU to limit irregular migration and to encourage development, have initiated policy changes within them. In fact, migration and border management have become a means of conditionality in their partnerships with the EU. Transit migration has often been explained within an unintended policy impact of increasing EU policies. Which means that due to increasingly restrictive entry policies in Europe, the Maghreb and Mashreq regions, have become de facto staging grounds for migrants hoping to cross into the European Union, owing to their proximity<sup>59</sup>. Other factors contributing to the persistence of challenges can also be rooted in national migrant integration policies, and challenges to development such as unemployment and poverty rates.

The main implication of these challenges is the encouragement of emigration as a means of development, through diaspora engagement policies. In fact, in Morocco, diaspora has historically been seen as a development asset, leading to the creation of two main institutions in 1990: the Ministry in Charge of Moroccans living abroad and the Foundation for Moroccans Living Abroad. The first focused on monitoring migration, reintegration, and diplomacy, while the latter addressed cultural and educational matters. Relative to these institutions' approaches to diaspora is a homeland-centered rationality focusing on instrumental values of the diaspora-homeland tie, which can manifest mainly through remittances or investment<sup>60</sup>. Following the same approach since 1998, Tunisia solemnly highlights the importance of diaspora in skill development and

<sup>&</sup>lt;sup>58</sup> Flore Gubert, Christophe J. Nordman (2009), "Migration trends in North Africa: focus on Morocco, Tunisia and Algeria", *OECD Journal: General Papers*, Issue 4, pp. 75-106, https://www.oecd.org/en/publications/oecd-journal-general-papers/volume-2009/issue-4\_gen\_papers-v2009-4-en.html.

<sup>&</sup>lt;sup>59</sup> Ninna Nyberg Sørensen (2006), *Mediterranean transit migration*, Danish Institute for International Studies. ISBN: 87-7605-141-2, https://pure.diis.dk/ws/files/2638693/mediterranean\_transit\_migration\_web.pdf.

<sup>&</sup>lt;sup>60</sup> Rilke Mahieu (2018), "Competing Origin-country Perspectives on Emigrant Descendants: Moroccan Diaspora Institutions' Policy Views and Practices Regarding the "Next Generation Abroad", *International Migration Review*, 53(1), 183-209.

economic development through remittances and investment<sup>61</sup>. To further encourage this engagement, the Tunisian government has granted preferential fiscal treatment to Tunisians residing abroad who wish to create or participate in investment projects. This includes exemptions from import duties and taxes on equipment, materials, and one transport truck, whether imported or purchased from bonded warehouses. Additionally, purchases made on the local market from VAT-registered suppliers benefit from suspended VAT, consumption duties, and turnover taxes<sup>62</sup>.

## 6. Conclusions

In conclusion, while the impacts of offshoring on employment and migration in Tunisia and Morocco are limited and context-dependent, the countries' experiences offer valuable insights into the structural constraints and opportunities facing emerging economies. The increase in service sector employment due to offshoring does not translate to a broad, generalized improvement in overall employment, largely because of challenges like informal unemployment and regulatory restrictions that limit the potential of the offshoring model. The confined role of both countries in labor-intensive sectors has kept them in lower positions within the Global Value Chain, preventing them from transitioning into knowledge-intensive industries, and cannot provide a solution for graduate unemployment, hence, for brain drain.

The limited impact of offshoring on migration is primarily driven by structural factors, as evidenced by the significant role of the Human Development Index in explaining migration trends, and by policy choices that promote emigration as a means of development. Emigration is viewed by both governments as an opportunity for economic growth through remittances and investment, with diaspora engagement policies actively encouraging the involvement of nationals abroad in the development of their home countries.

Looking ahead, policymakers in Tunisia and Morocco may benefit from expanding offshoring strategies to include knowledge-intensive sectors, which could enhance their global competitiveness and generate higher-value employment opportunities. However, this is strongly related to the need of skill matching, thus, to training programs initiatives and human capital investment. Mean-

<sup>&</sup>lt;sup>61</sup> From the public meeting between Tunisian Minister of Foreign affairs, Migration and Tunisia's abroad, with IOM DG Amy Pope on May 5, 2025: Statement from IOM Spokesperson: IOM Chief Visit to Tunisia, IOM, News May 5, 2025. accessed on May 6, 2025, https://www.iom.int/news/statement-iom-spokesperson-iom-chief-visit-tunisia.

<sup>&</sup>lt;sup>62</sup> Issam Briki, *Guide de l'Investissement pour les Tunisiens Résidant à l'Étranger*. Organisation internationale pour les migrations (OIM), Tunis. ISBN 978-92-9268-441-9 (PDF), https://publications.iom.int/books/guide-de-linvestissement-pour-les-tunisiens-residant-letranger.

while, the problematic challenges faced in labor markets and migration management can further be addressed in order to not fall into a race to the bottom, by easing access to onshore sectors. In fact, with the purpose of reaching a positive spillover effect of the offshoring regime, more balance seems to be needed between highly incentivised offshore and onshore regimes. Ultimately, achieving the sustainable development that these countries aim for will require aligning labor market reforms, migration policies, and offshoring incentives.

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