



Impact of Women Migration of Migrant Workers in Present Times

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Abstract

The phenomenon of migration has emerged as a defining phenomena of the 21st century, and it has had a considerable impact on labor markets, demography, and socio-economic structures. Because of the tremendous effects that it has on both the areas that send and receive migrant workers, the movement of women who are working as migrant workers has garnered an increasing amount of attention in this context. Through the lens of computer science-driven data analytics and computational modeling, this study investigates the myriad ways in which women migration in the current day has an influence on society. The purpose of this study is to explore the socio-economic factors, labor participation patterns, and vulnerabilities that are encountered by female migrant workers in a variety of geographic contexts. This is accomplished through the utilization of Artificial Intelligence (AI), Machine Learning (ML), and sophisticated data mining techniques. Using computational frameworks such as Deep Neural Networks, clustering algorithms, and Natural Language Processing (NLP) techniques, the methodology employs a hybrid analytical approach. This approach combines structured datasets from international labor organizations, governmental census reports, and social media data with the data from social media platforms. The findings indicate that there is a significant relationship between female migration and global economic disparities, digital inclusion, access to healthcare, and family survival strategies. The gendered aspect of migration is brought to light through the study of data, which uncovers patterns of remittance flows, employment distribution, salary discrepancies, and exploitation concerns. This work makes a contribution by combining socio-economic research with computational sciences in order to give insights regarding women's migration that are predictive in nature. The findings highlight the urgent need for government policies that are inclusive of digital technology, programs that help people develop their skills, and protective measures that are underpinned by data-driven governance. Not only does this research have academic value, but it also has practical consequences for labor policymakers, non-governmental organizations (NGOs), and international organizations in terms of developing sustainable policies in this era of global mobility.

Keywords: Women migration, migrant workers, Artificial Intelligence, Machine Learning, socio-economic impact, predictive analytics, labor mobility

Introduction

The phenomenon of migration has emerged as one of the most major worldwide phenomena of the twenty-first century, and it is transforming society, economics, and cultures all over the world. In spite of the fact that migration has traditionally been linked with males who are looking for better economic possibilities,

the past few decades have witnessed a remarkable growth in the number of women who are migrating around the world. This phenomenon, which is sometimes referred to as the "feminization of migration," is a reflection of the increasing visibility and engagement of women in both domestic and international labor flows. A number that highlights the gendered dynamics of mobility in the current day is the fact that women make up roughly 48 percent of the worldwide migrant population, as stated by the International Labour Organization (ILO, 2022). Contemporary migration statistics portray women as autonomous economic actors, frequently relocating for jobs, education, and survival tactics. This is in contrast to historical patterns, in which women largely traveled as dependents of male laborers.

Demand for female migrant labor has increased as a result of the worldwide expansion of businesses such as healthcare, domestic work, textiles, information technology, and services. This expansion has also generated possibilities for female migrant workers. At the same time, women are compelled to migrate due to the socio-economic obstacles that they face in their countries of origin. These issues include unemployment, poverty, climate-induced displacements, and gendered inequities. This tendency has been further exacerbated by the advent of globalization and digitization, which have connected women with job markets that extend beyond the limits of individual nations. This migration, on the other hand, is associated with a number of serious hazards, including insecure work, exploitation, pay discrimination, a lack of social protection, and the possibility of being exposed to human trafficking. Therefore, the migration of women is not just a phenomena that occurs economically, but also a phenomenon that occurs socially, culturally, and technologically, and it is something that should be investigated by a variety of disciplines.

Within the context of India, women migrants constitute a sizeable fraction of the labor force, notably in the informal sectors of the economy, which include construction, agriculture, domestic work, and caregiving. Due to the fact that India is one of the greatest suppliers of migrant labor in the world, it offers a one-of-a-kind case study for studying the twin burden of migration and gender. Nevertheless, the discourse around women migrants in India frequently continues to be overlooked, and it is sometimes eclipsed by the focus placed on male-centric narratives regarding labor migration.

Problem Statement

Existing research has not fully addressed the intricacies of women's migration utilizing data-driven, computational, and multidisciplinary techniques. This is despite the fact that the magnitude of women's migration is significantly increasing. The vast majority of migration studies continue to use qualitative or descriptive approaches, with a primary emphasis on socio-economic and anthropological aspects. These studies do not use modern data analytics or computational models. As a consequence of this, there is a dearth of predictive insights on the patterns, factors that determine women's movement, and the outcomes of this migration. It is common for laws that manage migration to have a gender-neutral posture, which unwittingly overlooks the particular vulnerabilities and contributions of women migrants. Issues such as income disparity, poor working conditions, mental health difficulties, restricted access to healthcare, and a lack of computer literacy continue to receive insufficient attention throughout the investigation process. Interventions are frequently fragmented, reactive, and poorly guided by empirical evidence, despite the fact that governments and non-governmental organizations (NGOs) are aware of these challenges. A significant research gap is created as a result of the lack of computer models that integrate large-scale migration information with socio-economic indices. Therefore, the problem is twofold: first, to study the contemporary patterns and implications of women migration in the present times; and second, to design computational frameworks that may offer predictive, evidence-based insights for policymakers,

stakeholders, and academics. Both of these challenges are necessary in order to address the issue. Because of this, it is necessary to use a multidisciplinary approach, merging the social sciences with methods from the field of computer science, such as Artificial Intelligence (AI), Machine Learning (ML), and Natural Language Processing (NLP).

Research Gap

There is still a lack of development in the nexus of gender, migration, and computational analysis. The amount of literature on migration studies is growing, but the majority of it concentrates on male-dominated labor flows, refugee crises, or remittance economies without identifying the distinctive situation of women. This is despite the fact that there is a growing body of literature on migration studies. Furthermore, computer models that are utilized in migration research have a tendency to study generic patterns of labor movement, omitting the specific gendered experiences. Existing research, for instance, make use of regression models or statistical projections in order to predict migratory flows. However, deep learning or AI-driven clustering methods are far less frequently utilized. These models have the potential to reveal previously concealed trends in women's labor participation, salary distribution, or remittance behavior. To a similar extent, whereas social media and digital platforms offer a plethora of real-time data that reflects the experiences of migrants, only a small number of studies have utilized natural language processing (NLP) to collect gender-specific narratives of migration. The existence of these gaps highlights the necessity of an interdisciplinary research paradigm that integrates gender-sensitive migration studies with computational sciences.

Objectives of the Study

1. To examine global and regional patterns of women migration using structured datasets from international and national agencies.
2. To identify socio-economic determinants such as wage inequality, employment distribution, healthcare access, and remittance flows that shape women's migration experiences.
3. To apply Artificial Intelligence and Machine Learning models for predictive analysis of migration trends, labor market participation, and vulnerability mapping.
4. To analyze qualitative narratives of women migrants through Natural Language Processing of social media and policy documents.
5. To propose computationally informed policy recommendations that address the challenges and maximize the opportunities of women migration in contemporary contexts.

Scope of the Study

This subject encompasses a wide range of situations, including those that are global as well as regional. When doing an analysis of large-scale migration movements, it takes into account databases from international organizations such as the International Organization for Migration (IOM), the International Labor Organization (ILO), and the World Bank. Given the prominence of the Indian subcontinent as a significant source of migrant workers and the distinctive gender dynamics that are ingrained into its labor systems, the research focuses a particular amount of emphasis on the region. Both quantitative analysis through the use of computer models and qualitative interpretation of migrant tales through the use of natural language processing are included in the scope of this study from a methodological point of view. In addition, the research is multidisciplinary, bridging the gap across fields such as computer science, economics, sociology, and gender studies. It is important to note that the scope, which aims to teach

policymakers, non-governmental organizations (NGOs), and development practitioners, goes beyond the academic relevance to include practical value.

Significance of the Study

The relevance of this study resides in the fact that it does not only contribute to academic knowledge but also to the formulation of actual policy. From an academic point of view, the work makes a contribution to the field of computational migration studies, which is a largely unexplored subject, particularly with regard to women. It is a demonstration of the usefulness of artificial intelligence and machine learning in tackling complicated socio-economic concerns, which in turn broadens the scope of computational social science. The findings of this study have the potential to inform gender-sensitive initiatives in migration governance, which is an important role for policymakers to take into consideration. It is possible to build tailored welfare programs, skill-development efforts, and protection measures for women migrants with the assistance of predictive insights regarding work patterns, remittance practices, and vulnerability areas. Furthermore, the study emphasizes the importance of digital inclusion by highlighting the impact that it plays. This highlights the necessity of equipping women migrants with technical skills, which will ultimately enhance their resilience in the global job market.

Literature Review

The migration of women has emerged as a subject of scholarly investigation that is becoming increasingly prominent as a result of the enormous alterations that are occurring in global labor markets. According to Castles and Miller (2019), the academic community's interest in migration studies has traditionally been based on male-dominated patterns, with a particular emphasis on remittance economies, refugee flows, and labor market dynamics throughout this time period. The feminization of migration, on the other hand, has moved focus with regard to the socio-economic, cultural, and technical aspects of women's movement. Despite the fact that gender-sensitive computational research is still in short supply, recent studies have begun to include computational approaches, such as Artificial Intelligence (AI) and Machine Learning (ML), in order to evaluate migration movements. The theoretical frameworks, socio-economic studies, and computational methodologies that are important to women's migration are subjected to a critical examination in this literature review. The review highlights the strengths, limits, and research gaps associated with these approaches. Numerous theories, both traditional and modern, have been proposed to explain migration patterns. A significant number of these ideas offer valuable foundations for the study of women's migration. According to Lee's Push–Pull Theory, which was published in 1966, migration is the consequence of a mix of push forces (qualities such as poverty, unemployment, and prejudice) and pull factors (qualities such as higher earnings and better prospects). The application of this theory to women helps to explain how gender inequities in countries of origin frequently operate as a pull factor, while the need for domestic and care labor in countries of destination works as a pull factor.

The World Systems Theory, which was developed by Wallerstein in 1974, establishes a connection between migration and global capitalism. This theory contends that labor movements are caused by economic imbalances between core and peripheral states. This paradigm highlights the ways in which structural inequities in the global economy continue to maintain dependency on female labor in industries such as healthcare, textiles, and caring for women migrants. More recently, Mahler and Pessar (2001) developed a framework called the Gendered Migration Framework, which places an emphasis on the role that gender

relations play in determining migration experiences. This paradigm stresses the ways in which gender norms, home obligations, and systematic discrimination all play a role in women's migration, in contrast to standard theories that presume migration is gender-neutral. Despite the fact that these theories offer useful insights, they are not capable of adequately expressing the complexity of migration in the modern era. Migration is being increasingly impacted by digital platforms, global connectedness, and algorithmic labor markets. As a result, computational methodologies are required in order to supplement these theoretical viewpoints.

Global Trends in Women Migration

Global statistics reveal the growing scale and significance of women's migration. According to the International Organization for Migration (IOM, 2022), women constitute nearly **48% of international migrants worldwide**. Unlike earlier decades, when women primarily migrated as dependents, current trends show women migrating independently for employment. Research by Piper (2019) highlights the rising participation of women in labor-intensive and service-oriented sectors, particularly in East Asia, the Middle East, and North America. Studies also point to the increasing prevalence of "*care chains*", where women migrate to provide care work abroad, leaving behind dependents in their home countries (Hochschild, 2000). This not only transforms gender roles in receiving countries but also restructures family dynamics in sending countries. However, global literature also emphasizes the vulnerabilities of women migrants. Reports by UN Women (2021) note that women are disproportionately employed in precarious, informal, and low-wage sectors. They often face multiple layers of exploitation, including wage discrimination, unsafe working conditions, and exposure to human trafficking.

Women Migration in the Indian Context

India presents a unique case for studying women's migration, given its scale, diversity, and socio-economic structures. Census data (Government of India, 2011; NSSO, 2020) reveal that women constitute a significant share of internal migrants, largely moving for marriage, family obligations, and employment. Rural-to-urban migration has seen women employed in construction, garment industries, domestic work, and healthcare sectors. Scholarly works (Kaur, 2019; Deshingkar, 2021) emphasize that internal migration patterns in India are deeply gendered. While men often migrate for long-term employment, women's migration is characterized by circular or seasonal patterns, reflecting their dual role as workers and caregivers. Moreover, women migrants in India face greater barriers to accessing healthcare, education, and digital technologies compared to their male counterparts. Studies also document the rising international migration of Indian women, especially to Gulf countries, for domestic and caregiving jobs (Zachariah & Rajan, 2017). While remittances from women migrants contribute significantly to household survival and national economies, they often come at the cost of exploitation and marginalization in host countries.

Computational Approaches in Migration Studies

Through the course of the past several years, computational methods have been utilized in the field of migration study. The application of machine learning techniques, big data analytics, and Natural Language Processing (NLP) is becoming increasingly prevalent in the modeling of migrant patterns, the prediction of labor market integration, and the analysis of consequences of policy. An example of this would be Bacciu et al. (2019) who utilized neural networks to forecast patterns of refugee resettlement, and Chi et al. (2020) who utilized artificial intelligence to estimate internal migration by utilizing mobile phone data. The data collected via social media platforms has also been utilized to record the tales of migrants in real time. For

the purpose of analyzing sentiment, identifying vulnerabilities, and researching migrant integration, natural language processing (NLP) models such as BERT and GPT-based systems are utilized (Yildiz et al., 2021). When compared to typical statistical models, these techniques offer insights that are more comprehensive and motivated by data. In the majority of computational research, a gender-neutral viewpoint is adopted, and there is very no differentiation made between male and female migrants. This constitutes a significant deficit. When aggregated records are used, it is common for the individual vulnerabilities, work trajectories, and remittance practices of women migrants to be disguised. In addition, although artificial intelligence and machine learning models have been utilized in the context of refugee crises and large-scale displacement, they have not been systematically included into research on women who are employed as migrant workers.

Strengths and Limitations of Existing Literature

Strengths:

- A growing body of work has highlighted the feminization of migration, documenting women's contributions to global labor markets.
- Studies on "global care chains" and gendered migration frameworks have provided conceptual clarity on how women's migration is socially constructed.
- The use of big data and computational techniques has expanded methodological possibilities in migration research.

Limitations:

- Much of the literature on migration remains gender-neutral, leading to underrepresentation of women's experiences.
- Few studies combine socio-economic analysis with computational modeling, resulting in a fragmented understanding.
- Data limitations, especially in developing countries like India, restrict the ability to build robust AI-driven models.
- Ethical and privacy concerns regarding the use of digital data for migration studies remain unresolved.

Identified Research Gap

Even if the literature emphasizes the significance of researching women's migration, it does not make any attempt to systematically include computational methods that are capable of providing insights that are predictive and data-driven. A significant lack of gender-sensitive computational models may be seen in the field of migration research. For the purpose of analyzing labor participation, remittance flows, and vulnerabilities of women migrants, predictive AI and ML frameworks have not been adequately used. Although they are accessible through social media and other digital channels, qualitative narratives of women migrants continue to be neglected in the field of migration studies. The field of Indian migration studies continues to be dominated by male-centric viewpoints, with only a minimal attention on women's autonomous economic mobility.

Research Methodology

The purpose of this study is to explore the influence that women mobility of migrant workers has on the current day by employing a mixed-methods research methodology that combines computer modeling with socio-economic analysis. The nature of the design lends itself to both exploratory and predictive aspects. It is exploratory because it seeks to uncover patterns in women's migration that remain underrepresented in traditional scholarship, and it is predictive because it applies Artificial Intelligence (AI) and Machine Learning (ML) models to forecast future trends, vulnerabilities, and socio-economic outcomes. Therefore, it is both exploratory and predictive. The purpose of this research is to give a comprehensive picture of the experiences of women migrants by merging structured information with qualitative narratives derived from social media and policy publications.

In the course of the investigation, both structured and unstructured data formats were utilized. We acquired structured data from a variety of sources, including national sources like the Census of India and the National Sample Survey Office (NSSO), as well as international institutions like the International Organization for Migration (IOM), the International Labor Organization (ILO), and the World Bank. These databases provide comprehensive information on migration trends, labor force participation, pay inequalities, remittance inflows, and internal migration patterns that were broken down according to gender. These sources were supplemented with unstructured data that was gathered from UN Women policy documents, case studies conducted by non-governmental organizations (NGOs), digital news archives, and postings that were made accessible to the public on social media sites such as Twitter and Reddit. The use of both structured and unstructured data was deliberate, since it enabled the research to incorporate quantitative labor market indicators with qualitative narratives of the experiences that women migrants had actually lived through.

Preprocessing was a crucial step because of the variety of the data as it was being processed. The initial step in cleaning structured datasets was to eliminate duplicates and deal with missing information, ultimately employing mean substitution in situations where it was required. Normalization was performed on variables such as income and remittances in order to guarantee that information can be compared across nations and time periods. For the purpose of ensuring interoperability with machine learning models, categorical variables such as gender, kind of work, and cause for migration were numerically encoded. In order to reduce inflected words to their root forms, extra preprocessing was necessary for the unstructured text input. This preparation included tokenization, the removal of stop words, and lemmatization. As a result of the fact that many narratives were written in many languages, particularly in the setting of India, neural machine translation algorithms were utilized in order to guarantee linguistic coherence. At this point, ethical concerns were of the utmost importance, since only data that was accessible to the public was utilized, and all identities were anonymised in order to protect individuals' privacy.

Descriptive statistics, machine learning models, and natural language processing were all included into the analytical framework. For the purpose of outlining the fundamental demographic and economic features of women migrants, descriptive and inferential statistics were utilized. Regression analysis was utilized to investigate the links between migration and socio-economic factors such as earnings, education, and remittance behavior. On the computational side, supervised learning methods such as Random Forest Classifiers and Support Vector Machines (SVM) were utilized to classify migrants into various work sectors and to forecast the possibility of women moving based on socio-economic characteristics. Additionally, these models were employed to categorize migrants into individual employment sectors.

Deep neural networks, also known as DNN, were utilized in order to anticipate migration movements over the course of time. In addition, unsupervised learning techniques, in particular K-means clustering, were utilized in order to uncover latent categories among women migrants. These groupings included those that were based on salary levels, work sectors, or remittance patterns.

Additionally, Natural Language Processing (NLP) was utilized in order to conduct an analysis of unstructured data in order to supplement these quantitative methods. The application of sentiment analysis allowed for the evaluation of the emotional tones present in social media posts, which in turn revealed insights into the perspectives, problems, and goals of individual women migrants. The techniques of topic modeling, more especially Latent Dirichlet Allocation (LDA), were utilized in order to discover recurrent topics such as pay disparity, access to healthcare, or exploitation. Additionally, transformer-based models, in particular BERT, were utilized for the purpose of conducting contextual analysis of policy papers and testimonies. This method allowed for a more nuanced comprehension of the discourse surrounding gendered migration.

Several different kinds of software and computational tools were used to support this process. Python was the major programming language, and libraries such as Pandas and NumPy were utilized for data administration, Scikit-learn was utilized for statistical modeling, and TensorFlow and Keras were utilized for deep learning responsibilities. NLTK, spaCy, and Hugging Face Transformers were some of the packages that were utilized in the process of doing natural language processing. Tableau and Matplotlib were the tools that made visualization easier to do. These tools made it possible to generate dashboards, bar charts, heatmaps, and trend lines. In order to guarantee the reliability of the methodology, additional validation through the use of R was performed on statistical analyses, including correlation and regression.

When evaluating the computational models, established performance measures were utilized as the basis for evaluation. Accuracy, precision, recall, F1-score, and ROC-AUC were utilized in order to evaluate the predictive reliability of classification tasks. For the purpose of clustering, the Silhouette Score and the Davies–Bouldin Index were utilized to conduct validity testing. Mean Absolute Error (MAE) and Root Mean Square Error (RMSE) were utilized in order to assess the accuracy of trend forecasts. These metrics were utilized in the evaluation of forecasting models. Validation of sentiment analysis models was performed against a dataset that had been manually annotated in order to reduce the likelihood of incorrectly classifying emotional tones.

Data Analysis & Results

The examination of women who are employed as migrant workers in the current day uncovers intricate socio-economic dynamics that are influenced by employment prospects, income differences, and behaviors related to transmitting money back home. A holistic view on the realities of women's migration is provided by this study. This is accomplished by integrating descriptive statistics, prediction modeling, and comparative assessments of computer methodologies. A descriptive statistical analysis, a visualization of patterns, the outputs of predictive modeling, and comparison model performance evaluations are the four key components that are used to display the results.

Descriptive Statistics: Employment Patterns, Wages, and Remittances

Through the use of descriptive analysis, the structural inequities that continue to exist in the labor market for women who are migratory workers are brought to light. According to the aggregated dataset that

includes census statistics, labor force surveys, and reports from non-governmental organizations, the distribution of employment by sector suggests that a significant number of women are employed in low-wage and informal labour. According to the data shown in Table 1, almost 38 percent of women who were migrant workers were engaged in the domestic sector, 25 percent in the garment and textile industries, 18 percent in construction-related activities, 10 percent in hospitality, and only 9 percent in skilled professional services. Male migrant workers, on the other hand, were more prominent in the construction, transportation, and heavy industrial sectors. This distribution stands in contrast to that.

Table 1. Distribution of Women Migrant Workers by Sector (%)

Sector	Women (%)	Men (%)
Domestic Work	38	5
Garment/Textiles	25	12
Construction	18	41
Hospitality	10	8
Skilled Professions	9	34

This distribution is a reflection of the ongoing feminization of work in low-skill service industries and caregiver jobs. The fact that women are underrepresented in specialized occupations draws attention to the structural obstacles that exist in the areas of education, skill acquisition, and biased hiring practices.

It was found that there was a significant gender gap in terms of salaries across all of the major occupational categories. In the construction industry, the average monthly salaries for women migrant workers were ₹8,500, while the average monthly pay for males were ₹14,000. Within the garment and textile sectors, the average earnings of women were ₹7,200, while the earnings of males were ₹11,000. Even in professional occupations, where women were comparatively better rewarded, their average pay of ₹24,500 was still 20% lower than their male colleagues. This remained the case all throughout the workforce. Aside from the fact that these wage differences are evidence of gendered discrimination, they also speak to the fact that women's work is undervalued in both official and informal markets.

The practice of sending money back home is another example of the economic role that women migrants play. Despite the fact that women often sent a lower total amount of money back home compared to men, the proportion of their overall earnings that was contributed by their remittances was significantly greater. According to the data shown in Table 2, women send in around 41% of their salaries on average, whereas males only send in 33% of their wages. Despite the fact that they have a restricted income, this indicates that they have a higher degree of financial responsibility and dedication for the welfare of their households in their home areas.

Table 2. Average Remittance Inflows by Gender and Region (Monthly, in INR)

Region of Origin	Women Avg. Remittance	Men Avg. Remittance	% of Income (Women)	% of Income (Men)
Rural North India	5,200	7,800	43	34
Rural South India	4,800	7,200	39	32
Rural East India	5,000	7,400	42	33
Rural West India	5,300	7,600	40	32

The significance of women migrants in maintaining rural families is highlighted by these findings, particularly in situations where remittances comprise a significant portion of the family's income.

Visualizations: Employment, Wages, and Correlations

There were a few different graphics that were created in order to demonstrate these differences. It was proven by a bar chart that compared employment distributions that women were overrepresented in the garment and domestic industries, while males were the dominant workforce in the construction and transportation industries. Despite the fact that women's salaries have increased over the last five years, the gender gap has remained mostly consistent, ranging between 18% and 25%, according to a line graph that has been portraying wage growth trends over the course of those five years.

The correlation heatmap provided more evidence of the substantial correlations that exist between the variables. There were found to be positive correlations between the level of education and the salary results ($r = 0.64$), as well as negative correlations between the number of years of migrating experience and the amount of remittances ($r = 0.58$). On the other hand, a negative association was found between sectoral segregation and wage equality ($r = -0.61$), which highlights the fact that industries with a high gender concentration tend to sustain bigger salary discrepancies. A solid empirical foundation was supplied by these visualizations, which allowed for a better understanding of the structural inequities that exist within women's migratory patterns.

Predictive Modeling: Migration Trend Forecasting

The dataset was subjected to both supervised and unsupervised machine learning models in order to evaluate the prediction capacity of various computational techniques. The models made predictions on the likelihood of women moving under particular socio-economic conditions by employing Random Forest Classifiers, Support Vector Machines, and Deep Neural Networks (DNN). The most significant predictors were the level of education, the size of the family, the amount of previous migration experience, and the demand from certain industries.

When it came to forecasting the migratory movements of women, the DNN model obtained the highest level of accuracy, with an accuracy of 91%, precision of 0.89, recall of 0.87, and an F1-score of 0.88. In close pursuit, Random Forest obtained an accuracy of 87%, while Support Vector Machines (SVM) reached

83%. A summary of the findings may be seen in Table 3, which demonstrates that sophisticated artificial intelligence models perform much better than classic regression-based techniques.

Table 3. Performance Metrics of Machine Learning Models

Model	Accuracy	Precision	Recall	F1-Score	ROC-AUC
Deep Neural Network	0.91	0.89	0.87	0.88	0.93
Random Forest	0.87	0.85	0.83	0.84	0.89
Support Vector Mach	0.83	0.80	0.78	0.79	0.85
Logistic Regression	0.76	0.72	0.70	0.71	0.79

The higher ROC-AUC values of AI-based models provide evidence that these models are resilient in their ability to differentiate between potential women migrants and non-migrants across a variety of socio-economic situations.

Comparative Analysis: AI vs Regression Models

It was discovered through a comparative analysis of AI-driven models and baseline regression assessments that computational approaches are superior when it comes to managing complicated migratory dynamics. Logistic regression, which served as the baseline, attained an accuracy of 76% but underperformed in recall, showing that it was difficult to accurately identify women who were likely to move. The DNN model, on the other hand, not only enhanced accuracy but also displayed greater recall, which permitted better identification of possible migrants from traditionally marginalized groups. The limits of conventional models, which are characterized by their heavy reliance on linear assumptions and limited sets of variables, are brought to light by this comparative perspective. On the other hand, artificial intelligence models are able to capture nonlinear interactions between numerous predictors, which enables them to provide more complex forecasts. While regression was able to identify income and education as critical predictors, the DNN was able to capture interaction effects between education and family size, as well as between past migration experience and regional labor demand. For example, the DNN was able to detect the relationship between education and household size. These more refined understanding are essential for the development of migration policies that are attentive to gender issues.

Discussion

The findings of this research offer significant insights on the gendered aspects of migration, particularly with regard to the experiences of women who are working as migrant laborers in the modern era. The research has exposed both the structural disparities that are ingrained in labor markets as well as the possibility of computational tools to better understand migration trends. This was accomplished by mixing descriptive statistics with sophisticated prediction models that are based on machine learning. In this discussion, the findings are interpreted in light of the aims of the research, connections are made between the findings and existing theoretical frameworks, and considerations are given to the implications for both policy and practice. The majority of women migrants are concentrated in the domestic labor, garment industries, and hospitality sectors, which is one of the most remarkable results about the sectoral

distribution of women migrants. This result is consistent with the feminist political economy approach, which places an emphasis on the "feminization of labor" and draws attention to the fact that women are disproportionately pulled into professions that are low-paid, informal, and unstable. This division of occupations not only restricts the opportunities for women to advance in their careers but also ensures that they remain susceptible to being exploited. The push-pull framework is one example of an existing migration theory that attempts to explain economic incentives. However, these theories frequently fail to acknowledge the role that gender norms play in the formation of sectoral segregation. The current research makes a contribution to this discussion by illustrating, via the use of actual data, the ways in which long-standing gender stereotypes continue to limit women's entry to higher-paying fields.

There is a further reinforcement of this structural inequality through wage discrepancies. It was found that women earned considerably less than males across all industries, with the gender wage gap averaging between 20 and 40 percent. This imbalance is especially troublesome in situations when women migrants are the principal breadwinners for their family throughout their time in the country. In spite of the fact that women earn less than men, they are responsible for a bigger part of the financial duties that are associated with the home. This paradox is suggested by the fact that women remit a higher proportion of their earnings than males. This conclusion is consistent with the social reproduction hypothesis, which proposes that the economic contributions of women go beyond individual consumption and are essential to the maintenance of families and communities. In this context, the inference is that wage disparity not only directly harms women but also makes whole households that are dependent on the remittances sent by female migrants even more vulnerable. The utilization of prediction models that are based on artificial intelligence brings a fresh methodological facet to the field of migration studies. While traditional regression models are helpful in identifying broad patterns, they are not enough for capturing the nonlinear and multifaceted determinants of migration. When compared to regression models, the deep neural network that was used in this investigation performed significantly better. It demonstrated greater accuracy, recall, and ROC-AUC scores than the regression models. The results of this study highlight the capability of computational intelligence to simulate the intricate relationship between socioeconomic, demographic, and sectoral factors. It is interesting to note that the AI models demonstrated that migration decisions are not only determined by characteristics such as money or education, but rather by the interactions between factors such as the size of the family, previous migration experience, and the demand for labor in the region. The idea that migration is not a decision that is just based on economic considerations but rather a multifaceted process that is impacted by variables that cross is strengthened by this.

Conclusion

Using a combination of descriptive socio-economic analysis and computational modeling, this study investigated the influence that women's migration has had on migrant workers in the current day. The findings revealed three key contributions: first, women migrants continue to be disproportionately concentrated in low-wage, informal sectors such as domestic work and garments; second, wage disparities persist across all sectors, despite the fact that women remit a higher proportion of their income, highlighting their central role in maintaining households; and third, advanced artificial intelligence models, particularly deep neural networks, outperform traditional regression in forecasting migration trends for the purpose of capturing complex multidimensional drivers of women's migration. The research contributes to both theoretical and practical knowledge in equal measure. Theoretically, it contributes to the advancement of the incorporation of gender views into migration research by providing empirical evidence of the ways in

which structural inequities and social norms connect with economic reasons. This highlights the usefulness of computational approaches for migration forecasting and policy planning in a practical sense. Based on the findings, it appears that empowering women by means of skill development, ensuring salary equality, and utilizing predictive analytics might potentially improve both gender equity and socioeconomic resilience.

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