LABOR SUPPLY AND DEMAND DYNAMICS IN VIETNAM AMID THE DIGITAL TRANSFORMATION ERA

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Abstract: ***In the course of socio-economic development, labor has always played a central role, determining production efficiency and national productivity. The effective operation of the labor market, where labor supply and demand intersect, is a core driver of sustainable growth. However, in reality, the labor market in Vietnam and many other countries is facing various challenges: imbalances between labor supply and demand, an oversupply of low-skilled workers, a shortage of highly skilled labor, and rapid shifts in employment structure driven by digital transformation and globalization. This paper aims to analyze the current dynamics of labor supply and demand and to propose several policy implications to help develop a more flexible, modern, and adaptive labor market that aligns with the digital age and contributes to sustainable growth and human capital development in the future.***

• Keywords: *labor supply, labor demand, labor market.*

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1. Introduction

In the context of the Fourth Industrial Revolution, digital transformation has become an inevitable trend in the global economy, including in Vietnam. Digital transformation not only influences business models and production activities but also significantly reshapes the structure, quality, and skill requirements of the labor market.

In Vietnam, rapid digital transformation across various industries poses new demands for the workforce. Additionally, post-COVID-19 fluctuations in labor supply and demand exert further pressure on the transition process, as traditional industries shrink while emerging fields (such as data analytics, cybersecurity, AI, digital marketing, etc.) experience a shortage of high-quality labor supply. Hence, studying labor market fluctuations under digital transformation is essential to identify changes in skill demand, industry structure, age, and education levels, and to propose policy implications for a more flexible, modern, and adaptive labor market to foster sustainable growth and human capital development.

2. Theoretical Background

2.1. Labor Supply

Concept: Labor supply is the total number of workers that people of working age are willing and able to participate in economic activities (work) for a certain period of time, at a certain wage.

Factors affecting labor supply: Population size in working age; Labor force participation rate (labor force participation rate); Labor quality (education level, vocational skills, health...); Expected salary and working conditions; Socio-cultural factors (gender roles, occupational concepts, customs, etc.); State policies on education, vocational training and social security.

Characteristics of labor supply: Proactive on the part of employees; Fluctuations are slower than labor demand (due to demographic and training factors); Strongly influenced by salary, working conditions, and career prospects; It is uneven according to industry, region, and professional level.

2.2. Labor Demand

Concept: Labor demand is the number of workers that enterprises, organizations, and employers need to recruit to carry out production and business activities in a certain period, corresponding to a specific salary.

Factors affecting labor demand: The level of economic development (when the economy grows, labor demand increases); Structure of industries (service and high-tech industries often have different labor demand from agriculture and traditional production); Technological level (automation reduces the demand for unskilled workers but

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increases the demand for high-quality labor); Salary and benefits (high salaries can reduce the number of positions to be recruited due to high costs); State policies (regulations on minimum wage, tax policies, business support, etc.).

3. Research Methodology

The data used in the study are secondary data for the period 2022 - 2024 from the statistical yearbook of the General Statistics Office and the Ministry of Labor, War Invalids and Social Affairs.

All collected data is processed by the Excel program on the computer. For information that is quantitative data, the necessary indicators, such as absolute numbers, relative numbers, and averages are calculated and made into tables and graphs.

The methods of analyzing the collected information used in the article include: Descriptive statistical method, comparison method.

4. Research Results

4.1. Current Status of Labor Supply

In the period of 2022 - 2024, the total number of employed workers increased steadily over the years, from 50,6 million people in 2022 to 51,9 million people in 2024, showing the recovery and development of Vietnam's labor market.

4.1.1. Labor Supply by Economic Sector

The structure of employed labor divided into 3 economic sectors (agriculture, forestry & fisheries; industry & construction; services) in the 2022-2024 period shows a positive trend: The proportion of workers in the agriculture, forestry and fishery sector gradually decreased over the years, from 27,5% in 2022 to 26,5% in 2024. In contrast, the service sector increased from 39,0% to 40,1%, indicating a shift in the labor structure from agriculture to services. The labor rate in the industrial and construction sectors remained stable at around 33,5%, reflecting stability in this sector.

Table 1. Labor Supply Structure by Economic Sector

Year	Total Employed (Million)	Agriculture, Forestry & Fisheries		Industry & Construction		Services	
		Number (Million)	Share (%)	Number (Million)	Share (%)	Number (Million)	Share (%)
2022	50,6	13,9	27,5	17,0	33,5	19,7	39,0
2023	51,3	13,8	26,9	17,2	33,5	20,3	39,6
2024	51,9	13,7	26,5	17,4	33,4	20,8	40,1

Source: General Statistics Office (GSO) and Ministry of Labor, Invalids and Social Affairs (MOLISA)

4.1.2. Labor Supply by Age Group

The labor structure by age group is mostly stable, with the majority of the workforce concentrated in the middle-aged age group (25-54) - this is the main "main worker" group contributing to the labor market. The youth group (15-24) accounts for a smaller proportion, and the older working group (55 and older) tends to increase slightly due to the aging of the population.

Table 2. Labor Supply by Age Group

Year	Total Labor Force (million)	Age 15-24		Age 25-54		Age 55+	
		Number (Million)	Share (%)	Number (Million)	Share (%)	Number (Million)	Share (%)
2022	51,7	6,3	12,2	36,1	69,8	9,3	18,0
2023	52,4	5,9	11,26	36,7	70,04	9,8	18,70
2024	53,2	5,8	10,90	36,8	69,17	10,6	19,92

Source: General Statistics Office (GSO) and Ministry of Labor, Invalids and Social Affairs (MOLISA)

In 2022, the total labor force is 51,7 million people, of which the 15-24 age group accounts for about 12.2% (6,3 million people); the 25-54 age group accounted for 69,8% (36,1 million people), and 55 years old and over accounted for 18%. Thus, about two-thirds of the workforce belongs to the 25-54 age group, which is considered the main working age group of the economy.

In 2023, the age structure has not changed much. Young workers aged 15-24 account for 11.26% of the workforce; the group aged 25-54 accounted for 70,04% of the total labor force (36,7 million people); the remaining 18.7% are in the elderly group (55+). As the population is entering an aging phase, the proportion of elderly workers shows signs of increasing slightly, while the proportion of young people decreases compared to the previous decade.

In 2024, the aging trend within Vietnam's labor force became more evident, although it continued to evolve at a relatively slow pace. It is estimated that the share of employed workers aged 55 and over rose slightly to 19,92%, while the proportion of young workers aged 15-24 remained stable at 10,9%. The core working-age group, comprising individuals aged 25-54, continued to dominate the labor market, accounting for more than two-thirds of the total labor supply.

Although the structural change in workforce age composition during this period was not abrupt, demographic forecasts suggest that the labor force will continue to age gradually in the future. This trend is expected to be driven by declining birth rates and rising life expectancy, two key demographic forces reshaping the labor supply over the long term.

From 2022 to 2024, the 15-24 age group (representing young labor market entrants) showed a gradual downward trend, declining from 12,2% in 2022 to 10,9% in 2024. This decline reflects a combination of demographic shifts, extended educational periods, and delayed workforce entry among youth. Meanwhile, the 25-54 age group - the backbone of Vietnam's productive workforce - maintained a relatively stable share of around 70%, though with a slight downward trend, hinting at a broader population structure transition.

In contrast, the 55+ age group witnessed a steady rise in labor market participation, increasing from approximately 18% in 2022 to 19,92% in 2024. This upward trend clearly signals an aging labor force and underscores the growing importance of policies aimed at extending working life, improving elderly employability, and adapting labor market institutions to the realities of an aging society.

4.1.3. Labor Supply by Educational Attainment

The structure of Vietnam's labor force by educational attainment during the 2022-2024 period reveals a gradual improvement in the qualifications of the workforce. The proportion of workers holding degrees or certificates increased slightly from 26,2% in 2022 to 27,8% in 2024, indicating a positive trend toward upskilling and professional development.

Despite this progress, untrained workers still constitute the overwhelming majority of the labor force, accounting for 72,2% in 2024. This highlights the urgent need to strengthen vocational training and technical education systems to improve workforce quality and meet the demands of an increasingly knowledge-based economy.

Table 3. Labor Supply by Educational Attainment (2022-2024)

Year	Total Labor Force (million)	With Degrees/Certificates		Untrained Labor	
		Number (Million)	Share (%)	Number (Million)	Share (%)
2022	51,7	13,5	26,2	38,2	73,8
2023	52,4	14,1	27,0	38,3	73,0
2024	53,2	14,8	27,8	38,4	72,2

Source: *General Statistics Office (GSO) and Ministry of Labor, Invalids and Social Affairs (MOLISA)*

4.1.4. Labor Structure by Economic Sector

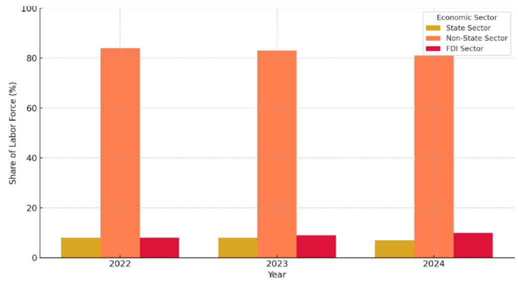
Vietnam's labor force structure by economic sector in the 2022-2024 period reflects notable trends in employment distribution across different types of ownership.

Non-State Sector: The non-state sector consistently accounts for the largest share of employment, maintaining a level of approximately 81-84% during 2022-2024. This underscores the leading role of the domestic private sector, particularly household businesses and private enterprises, in generating employment across the economy.

Foreign Direct Investment (FDI) Sector: The proportion of labor employed in the FDI sector rose slightly, from around 8% in 2022 to approximately 10% in 2023 and 2024, indicating increasing foreign investment and the expansion of production capacity in foreign-invested enterprises. This sector plays a significant role in driving structural transformation toward industrialization and modernization.

State Sector: Employment in the state sector exhibited a mild downward trend, decreasing from around 8% in 2022 to about 7-8% in 2024, reflecting the effects of administrative streamlining and equitization (partial privatization) of state-owned enterprises.

Figure 1. Labor Distribution by Economic Sector



Source: General Statistics Office (GSO) and Ministry of Labor, Invalids and Social Affairs (MOLISA)

The structure of employment by economic sector in Vietnam indicates that the domestic private sector remains the largest absorber of labor, reflecting the critical role played by household-based economies and private enterprises.

Although the foreign direct investment (FDI) sector accounts for less than one-tenth of total employment, it has shown a gradual upward trend thanks to increased foreign capital inflows. This sector has significantly contributed to shifting employment toward modern industries and service-based economies, reinforcing Vietnam's industrial transformation and integration into global value chains.

Meanwhile, the state sector has maintained a relatively low and declining share of total employment. This reduction is largely attributed to the effectiveness of public administration reforms and the equitization (partial privatization) of state-owned enterprises (SOEs). These developments reflect the government's efforts to streamline public-sector employment and promote efficiency.

Overall, these trends signify a positive evolution toward a more dynamic and flexible labor market. However, they also raise new challenges, particularly the need to improve labor productivity and enhance workforce skills in the private and FDI sectors - areas that are highly competitive and increasingly demand specialized knowledge and technical qualifications.

4.2. Labor Demand by Economic Sector in Vietnam (2022-2024)

Labor demand by economic sector in Vietnam during the 2022-2024 period reveals significant structural differentiation: *Services Sector*: Continues to lead in terms of employment, reflecting the ongoing economic restructuring and the rising demand in fields such as trade, tourism, and information technology; *Industry & Construction:* Demonstrates stable growth, particularly in manufacturing and construction activities, to meet infrastructure development and industrialization needs; *Agriculture, Forestry* **&** *Fisheries:* Shows a slight decline in labor demand, indicating a transition toward sectors with higher value-added potential.

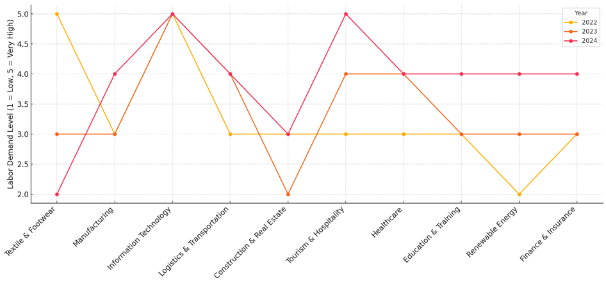
Table 4. Number of Employed Workers by Sector (Million people)

Sector	2022	2023	2024
Agriculture, Forestry & Fisheries	13.9	13.8	13.8
Industry & Construction	17.0	17.2	17.5
Services	19.7	20.3	20.6
Total	50.6	51.3	51.9

Source: General Statistics Office (GSO) and Ministry of Labor, Invalids and Social Affairs (MOLISA)

Labor demand during this period also reveals a clear distinction between traditional and modern sectors: *Information Technology (IT):* Maintains very high demand across all years, driven by digital transformation and the growing need for high-skilled technical labor. *Tourism, Hospitality, and Banking*: Witness sharp increases in demand after the pandemic, supported by a booming domestic tourism sector. *Healthcare and Social Care***:** Labor demand continues to rise due to population aging and public health challenges. *Textile and Footwear:* Experiences a significant decline due to a shortage of international orders and global supply-demand shifts. *Manufacturing:* Shows mild recovery as domestic demand strengthens. *Renewable Energy:* Gradually expands, spurred by government policies promoting sustainable development.

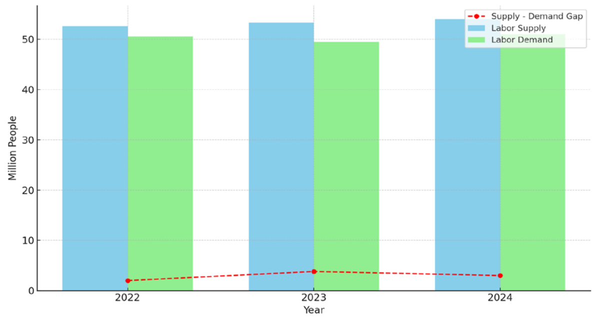
Figure 2. Labor Demand Trends by Sector (2022-2024)



Source: Author's compilation from GSO and MOLISA data

4.3. Labor Supply-Demand Imbalances.

Figure 3. Labor Market Supply-Demand Balance in Vietnam (2022-2024)



Source: Author's compilation from GSO and MOLISA data

Throughout all three years - 2022, 2023, and 2024 - the labor supply (the number of individuals willing and able to work) consistently exceeded labor demand (the number of actual job vacancies provided by businesses and employers).

In 2022, the labor surplus was estimated at approximately 2 million workers. In 2023, the supply-demand imbalance widened slightly due to the impact of the global economic slowdown, which caused labor demand to decrease to 49.5 million. By 2024, the labor market began to show signs of mild recovery; however, labor supply still exceeded demand by roughly 3 million people.

This persistent supply-demand mismatch in the labor market has increased the risk of unemployment and employment instability, particularly among low-skilled workers and youth. It has also placed mounting pressure on vocational education and training systems, especially in terms of reskilling and upskilling the existing workforce to meet changing economic demands.

The key contributing factors to this imbalance include:

Between 2022 and 2024, Vietnam's labor market has continued to experience persistent mismatches between labor supply and demand, as the number of individuals willing and able to work consistently exceeds the actual number of job vacancies offered by enterprises. This imbalance has contributed to rising unemployment and underemployment, particularly among low-skilled and young workers, while placing increasing pressure on vocational training systems and labor market institutions. Several underlying causes can be identified:

First, the structural transformation of the economy has lagged behind labor market needs.

Despite progress in industrialization and modernization, a significant proportion of the workforce remains concentrated in traditional sectors such as agriculture, while emerging industries, such as digital technology, logistics, and renewable energy, face chronic labor shortages.

Second, the skills mismatch remains a critical constraint.

Many workers lack the technical and professional competencies required for high-skilled jobs. According to ILO (2021), nearly 75% of Vietnam's labor force lacks formal vocational qualifications, which severely limits access to decent employment and raises the risk of structural unemployment.

Third, vocational and tertiary education systems are not well aligned with labor market demands.

Curricula remain overly theoretical and insufficiently responsive to technological advancements or practical workplace needs. As a result, a large proportion of graduates face difficulties finding jobs that match their qualifications, leading to the so-called "overeducation-underemployment" paradox.

Fourth, digital transformation and automation are reshaping labor demand patterns.

The widespread adoption of digital technologies has reduced the demand for routine, low-skilled labor, while increasing the demand for digital and data-literate workers. However, Vietnam's digital skills training ecosystem has yet to keep pace with these evolving requirements.

Fifth, global economic fluctuations and the slowdown in export-oriented sectors have impacted labor demand.

The downturn in global demand has negatively affected key export industries such as textiles, footwear, and seafood processing. In addition, many returning migrant workers have faced difficulties reintegrating into the domestic labor market post-COVID-19.

Sixth, Vietnam's demographic dividend remains underutilized.

Although the country is in a "golden population structure" phase, only 26-28% of the workforce held formal qualifications or certificates during the 2022-2024 period (GSO, 2024), underscoring persistent challenges in workforce quality and the underutilization of demographic advantages.

5. Conclusion and Policy Recommendations

The 2022-2024 period shows that the imbalance between labor supply and demand is a long-standing and worrying problem in Vietnam. The urgent solution is to promote high-quality human resource training, forecast the labor market more accurately, and restructure training occupations to narrow the gap between supply and demand in the coming time.

Recommending some solutions to narrow the gap between labor supply and demand in Vietnam

(1) Innovate and link the education and training system with practical needs: Design training programs according to business orders. Promote vocational education models linked to practice, soft skills training, and digital skills. Strengthen the three-party linkage: state - business - school in forecasting labor demand.

(2) Strengthen forecasting and updating labor market information: Build a transparent labor market data system, continuously updated. Conduct periodic surveys on labor supply and demand by industry and region.

(3) Promote the shift of labor structure towards modernization: Encourage workers to change careers from labor surplus sectors (such as agriculture, textiles) to labor shortage sectors (IT, logistics, green energy). Support retraining and skill improvement for vulnerable labor groups.

(4) Attract investment in industries that use a lot of high-quality labor: prioritize the fields of high technology, digital services, logistics, healthcare, renewable energy. Build a favorable investment environment to create more good-quality jobs.

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