



Workforce Turnover Analytics in the U.S. Labor Market: Trends, Determinants, and Data-Driven Retention Strategies Across Industries

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Abstract

Workforce turnover continues to pose significant challenges to organizational productivity, workforce stability, and talent management across the United States. This review examines turnover trends, key determinants, and data-driven retention strategies between 2010 and 2025 using a systematic review and secondary data synthesis approach. Evidence was drawn from major labor market datasets, including the Job Openings and Labor Turnover Survey (JOLTS), Current Population Survey (CPS), American Community Survey (ACS), Occupational Information Network (O*NET), and National Compensation Survey (NCS), alongside relevant workforce analytics literature. Guided by Human Capital Theory and Social Exchange Theory, the study finds that turnover increased during the post-Great Recession recovery period, peaked during the Great Resignation of 2021–2022, and remained above many pre-pandemic levels despite recent moderation. Turnover rates were highest in leisure and hospitality, retail trade, and healthcare industries. Key determinants included age, education, compensation, tenure, benefits, and workplace flexibility. The review further highlights the effectiveness of competitive compensation, career development opportunities, employee well-being programs, and predictive workforce analytics in reducing turnover. The findings emphasize the need for integrated, evidence-based retention strategies to enhance workforce stability and organizational performance in an evolving labor market.

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Introduction

Employee turnover remains one of the most significant challenges confronting organizations in modern labor markets. The departure of employees, whether voluntary or involuntary, affects organizational productivity, institutional knowledge retention, workforce stability, service quality, and overall competitiveness. While a moderate level of turnover may introduce new skills and perspectives into organizations, excessive turnover often results in substantial recruitment, training, and replacement costs, disruption of business operations, and diminished employee morale (Hom *et al.*, 2017) ^[8]. Consequently, understanding workforce turnover patterns and identifying effective retention strategies have become critical priorities for employers, policymakers, and labor market researchers.

The United States labor market has experienced profound transformations over the past decade due to technological advancements, demographic shifts, evolving employee expectations, economic fluctuations, and unprecedented disruptions such as the Coronavirus Disease 2019 (COVID-19) pandemic. These changes have significantly influenced labor mobility and employee turnover behaviors across industries. One of the most notable labor market phenomena during this period was the “Great Resignation,” characterized by historically high levels of voluntary quits beginning in 2021 as employees reassessed career priorities, work-life balance preferences, compensation expectations, and workplace conditions (Cook, 2021; Klotz & Bolino, 2022) ^[5, 9].

Data from the U.S. Bureau of Labor Statistics (BLS) indicate that quit rates reached record levels in several sectors, particularly leisure and hospitality, retail trade, healthcare, and professional services, highlighting the growing importance of workforce retention strategies in a competitive labor environment (BLS, 2025) ^[14].

The economic consequences of employee turnover are substantial. Research suggests that replacing an employee can cost between one-half and two times the employee's annual salary, depending on skill level, industry, and organizational context (Allen *et al.*, 2010) ^[1]. Beyond direct financial costs, turnover can negatively affect organizational learning, customer satisfaction, innovation capacity, and overall workforce performance (Hausknecht & Trevor, 2011) ^[7]. For industries experiencing persistent labor shortages, such as healthcare, information technology, transportation, and hospitality, turnover represents an even greater challenge because replacing experienced workers becomes increasingly difficult in constrained labor markets (Society for Human Resource Management [SHRM], 2023) ^[13].

Understanding the determinants of employee turnover has therefore become an important area of inquiry in human resource management, labor economics, and organizational behavior research. Previous studies have identified numerous factors influencing turnover intentions and actual separation behavior, including compensation, job satisfaction, organizational commitment, career advancement opportunities, supervisory support, workplace flexibility, employee engagement, demographic characteristics, and broader labor market conditions (Griffeth *et al.*, 2000; Hom *et al.*, 2017) ^[6, 8]. However, the relative importance of these factors often varies across industries, occupations, demographic groups, and economic periods. As labor markets become increasingly dynamic, there is a growing need for comprehensive evidence that integrates macroeconomic trends, organizational practices, and individual-level determinants of turnover.

Recent advances in workforce analytics and business intelligence have created new opportunities for understanding employee turnover. Organizations increasingly leverage large-scale administrative datasets, predictive analytics, machine learning algorithms, and visualization tools to identify turnover risks and design targeted retention interventions (Margherita, 2022) ^[10]. Workforce analytics extends traditional human resource management by integrating statistical modeling, data mining, and predictive forecasting to generate actionable insights from employee and labor market data. These analytical approaches enable organizations to move beyond reactive responses toward proactive workforce planning and evidence-based retention strategies.

The availability of large, nationally representative U.S. datasets has significantly enhanced opportunities for labor market analysis. The Job Openings and Labor Turnover Survey (JOLTS) provides detailed information on hires, quits, layoffs, and separations across industries, allowing researchers to examine turnover dynamics over time. The Current Population Survey (CPS) offers comprehensive employment and workforce characteristics, while the American Community Survey (ACS) provides rich demographic and socioeconomic information relevant to labor market participation. Furthermore, the Occupational Information Network (O*NET) database contains extensive

occupational characteristics that facilitate analysis of job-related determinants of turnover, whereas the National Compensation Survey (NCS) provides valuable information on wages, benefits, and compensation structures that influence employee retention decisions. Collectively, these datasets provide a robust empirical foundation for understanding workforce turnover trends and their underlying determinants in the United States labor market.

Despite a substantial body of literature on employee turnover, several important knowledge gaps remain. First, many studies focus on specific industries, occupations, or organizations, limiting the generalizability of findings across the broader labor market. Second, the rapid changes observed between 2010 and 2025, including the effects of digital transformation, remote work adoption, demographic transitions, and post-pandemic labor market adjustments, necessitate updated evidence regarding turnover patterns and retention drivers. Third, although predictive analytics has become increasingly important in workforce management, there remains limited synthesis of the analytical methods currently employed to forecast turnover and support retention strategies across industries.

This review paper addresses these gaps by synthesizing evidence from major U.S. labor market datasets and contemporary workforce analytics literature to examine trends, determinants, and data-driven retention strategies associated with employee turnover. Specifically, the review seeks to answer five key research questions: (1) How have turnover rates changed in the United States between 2010 and 2025? (2) Which sectors experience the highest levels of voluntary quits? (3) What demographic factors influence employee turnover? (4) How does compensation affect employee retention? and (5) What predictive analytics methods have proven most effective in identifying turnover risks and supporting retention strategies?

The study contributes to the literature by integrating insights from labor economics, human resource management, workforce analytics, and business intelligence into a comprehensive framework for understanding employee turnover in the contemporary U.S. labor market. By synthesizing evidence from nationally representative datasets and recent empirical studies, the review provides valuable insights for researchers, policymakers, human resource practitioners, and organizational leaders seeking to develop effective, evidence-based workforce retention strategies in an increasingly competitive labor environment.

Methodology

Research Design

This study employed a systematic review design combined with secondary data synthesis to examine workforce turnover trends, determinants, and data-driven retention strategies in the United States labor market between 2010 and 2025. A systematic review approach was adopted because it provides a rigorous and transparent framework for identifying, evaluating, and synthesizing evidence from multiple sources to generate comprehensive insights into complex labor market phenomena (Snyder, 2019) ^[12]. The review integrated findings from peer-reviewed journal articles, government reports, labor statistics publications, and nationally representative workforce datasets to provide a holistic understanding of employee turnover across industries and demographic groups.

Theoretical Framework

The study was anchored in Human Capital Theory (Becker, 1964)^[3] and Social Exchange Theory (Blau, 1964)^[4]. Human Capital Theory posits that employees make employment decisions based on the expected returns from their investments in education, skills, and experience, while organizations seek to retain valuable talent to maximize productivity and organizational performance. Social Exchange Theory argues that employee retention is influenced by reciprocal relationships between employers and employees, whereby favorable compensation, supportive work environments, and career development opportunities foster commitment and reduce turnover intentions. Together, these theories provide a useful framework for understanding how demographic characteristics, occupational attributes, compensation structures, and workplace conditions influence workforce turnover and retention outcomes.

Data Sources

The review utilized five major U.S. labor market datasets that are widely recognized for their reliability, national coverage, and methodological rigor. The Job Openings and Labor Turnover Survey (JOLTS), published by the U.S. Bureau of Labor Statistics, provided information on hires, quits, layoffs, and separations and served as the primary source for analyzing turnover trends across industries. The Current Population Survey (CPS), jointly administered by the U.S. Census Bureau and the U.S. Bureau of Labor Statistics, supplied employment and workforce characteristics. The American Community Survey (ACS) provided demographic and socioeconomic information relevant to labor market participation and mobility. Occupational characteristics, including skill requirements, job complexity, and work conditions, were obtained from the Occupational Information Network (O*NET) database, while compensation-related information such as wages, salaries, benefits, health insurance, retirement plans, and paid leave was sourced from the National Compensation Survey (NCS). Collectively, these datasets provided a robust empirical foundation for examining workforce turnover patterns and retention drivers in the United States.

Literature Search Strategy

A comprehensive literature search was conducted using major academic databases, including Scopus, Web of Science, Google Scholar, ProQuest, EBSCOHost, JSTOR, and ScienceDirect. The search focused on studies published between January 2010 and March 2026 to capture contemporary labor market developments, including the effects of digital transformation, changing workforce demographics, and post-pandemic employment dynamics. Search terms included combinations of keywords such as “employee turnover,” “labor turnover,” “employee retention,” “voluntary quits,” “workforce analytics,” “people analytics,” “human resource analytics,” “compensation and retention,” “job satisfaction and turnover,” and “predictive analytics.” Boolean operators (AND, OR) were used to refine search results and ensure comprehensive coverage of relevant literature.

Inclusion and Exclusion Criteria

Studies were included if they were published between 2010 and 2026, focused on the United States labor market,

examined employee turnover, retention, workforce mobility, or related workforce analytics issues, and were published in peer-reviewed journals, government reports, or reputable institutional publications. Empirical studies, systematic reviews, and meta-analyses that addressed one or more of the study’s research questions were also included. Studies were excluded if they were conducted outside the United States, published in languages other than English, lacked methodological transparency, consisted primarily of opinion pieces or editorials, or represented duplicate publications.

Analytical Framework

The analysis was organized around four interrelated themes corresponding to the study objectives. First, turnover trends between 2010 and 2025 were examined using evidence from JOLTS and related labor market studies to identify temporal patterns in hires, quits, and separations. Second, industry-level analyses were synthesized to determine sectors experiencing the highest levels of voluntary quits and workforce instability. Third, demographic evidence from CPS and ACS datasets was reviewed to assess the influence of age, gender, educational attainment, race, ethnicity, and income on turnover behavior. Finally, compensation and benefits data from the National Compensation Survey, together with findings from empirical studies, were synthesized to evaluate the relationship between compensation structures and employee retention outcomes. Findings from O*NET and workforce analytics studies were further integrated to identify occupational characteristics and predictive factors associated with turnover risk.

Quality Assessment

To ensure methodological rigor and reliability, studies included in the review were assessed using criteria adapted from the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Page *et al.*, 2021)^[11]. The assessment considered the clarity of research objectives, appropriateness of study design, adequacy of sample size, quality of data sources, robustness of analytical methods, transparency of reporting, and relevance to the review objectives. Only studies meeting acceptable methodological standards were included in the final synthesis to enhance the validity and credibility of the findings.

Limitations

This study is subject to several limitations. First, the review relies on secondary data and published literature, making it dependent on the quality, scope, and reporting standards of existing studies and datasets. Second, variations in definitions, measurement approaches, and analytical techniques across studies may affect the comparability of findings. Third, while the selected datasets provide comprehensive national coverage, certain organizational-level factors such as workplace culture, leadership style, and employee engagement may not be fully captured. Finally, the review synthesizes associations reported in the literature and therefore cannot establish definitive causal relationships between turnover determinants and retention outcomes. Nevertheless, the integration of multiple nationally representative datasets and high-quality empirical studies strengthens the robustness and generalizability of the findings.

Results and Discussion

Trends in Workforce Turnover in the United States (2010–2025)

Figure 1 illustrates the evolution of workforce turnover in the United States between 2010 and 2025 using three key labor market indicators derived from the Job Openings and Labor Turnover Survey (JOLTS): voluntary quit rate, total separations rate, and hires rate. The figure reveals three distinct phases in labor market dynamics that correspond to major economic and workforce developments during the study period. The period from 2010 to 2019 was characterized by steady economic recovery following the 2008–2009 Great Recession. During this phase, the voluntary quit rate increased gradually from approximately 1.6% in 2010 to 2.3% in 2019, indicating growing employee confidence in the labor market and improved opportunities for job mobility. Simultaneously, the hires rate rose from 4.2% to approximately 4.6%, reflecting expanding employment opportunities and increasing labor demand. Total separations also increased moderately, suggesting that labor market fluidity was improving as economic conditions strengthened.

The gradual rise in quits during this period aligns with labor market theory, which posits that employees are more likely to voluntarily leave their jobs when alternative employment opportunities become readily available. The sustained increase in hiring activity further supports the notion of a strengthening labor market characterized by low unemployment rates and increased competition for skilled labor. The second phase represents the most significant structural disruption observed in the figure. Although the COVID-19 pandemic initially caused widespread labor market uncertainty in 2020, the subsequent recovery generated unprecedented workforce mobility. The voluntary quit rate remained elevated in 2020 and surged dramatically thereafter, reaching a historic peak of approximately 2.8% in 2022. Similarly, the total separations rate increased sharply from about 4.3% in 2020 to 5.1% in 2022, representing the highest level recorded during the study period.

This surge reflects the phenomenon widely referred to as the “Great Resignation,” during which millions of workers voluntarily left their jobs in search of better wages, improved working conditions, enhanced work-life balance, and greater workplace flexibility. The hires rate remained relatively high throughout this period, indicating that labor demand recovered quickly despite pandemic-related disruptions. The coexistence of high quits and high hiring rates demonstrates an exceptionally dynamic labor market characterized by intense employee movement across organizations and industries. The findings suggest that the pandemic accelerated underlying workforce trends rather than creating entirely new patterns. Employees increasingly reassessed career priorities, workplace expectations, and compensation

packages, resulting in heightened turnover across multiple sectors.

Following the peak of the Great Resignation, workforce turnover began to moderate. The quit rate declined steadily from 2.8% in 2022 to approximately 2.0% in 2025, while the total separations rate fell from 5.1% to about 4.1% over the same period. The hires rate also decreased gradually, returning to approximately 4.0% by 2025. The downward trend suggests a normalization of labor market conditions as organizations adapted to post-pandemic realities and economic growth slowed. Nevertheless, turnover indicators remained above levels observed during much of the pre-pandemic period, indicating that labor market mobility continues to be a defining feature of the contemporary workforce. Employees appear to retain greater bargaining power than before the pandemic, while organizations continue to face retention challenges in attracting and retaining skilled workers.

A notable feature of the figure is the close relationship between voluntary quits, total separations, and hiring activity. Periods characterized by higher hiring rates generally coincide with higher quit rates, suggesting that employee mobility is strongly influenced by the availability of alternative employment opportunities. Conversely, when hiring activity declines, employee turnover tends to moderate. This relationship supports Human Capital Theory, which argues that workers make employment decisions based on expected economic returns and available labor market opportunities. The divergence between hires and quits during the Great Resignation period is particularly noteworthy. While hiring activity increased moderately, quits rose much more sharply, indicating that employee decisions were influenced not only by labor demand but also by changing preferences regarding workplace flexibility, compensation, organizational culture, and career advancement.

The trends observed in Figure 1 underscore the growing importance of evidence-based retention strategies in modern organizations. The persistence of elevated turnover rates after the Great Resignation suggests that traditional retention approaches may no longer be sufficient. Employers must increasingly focus on competitive compensation, flexible work arrangements, employee well-being, career development opportunities, and supportive organizational cultures to reduce voluntary turnover. From a workforce analytics perspective, the figure demonstrates the value of continuously monitoring turnover indicators to identify emerging labor market risks and design proactive retention interventions. Organizations that leverage predictive analytics and human resource intelligence systems are likely to be better positioned to anticipate employee departures and implement targeted retention measures before turnover occurs.

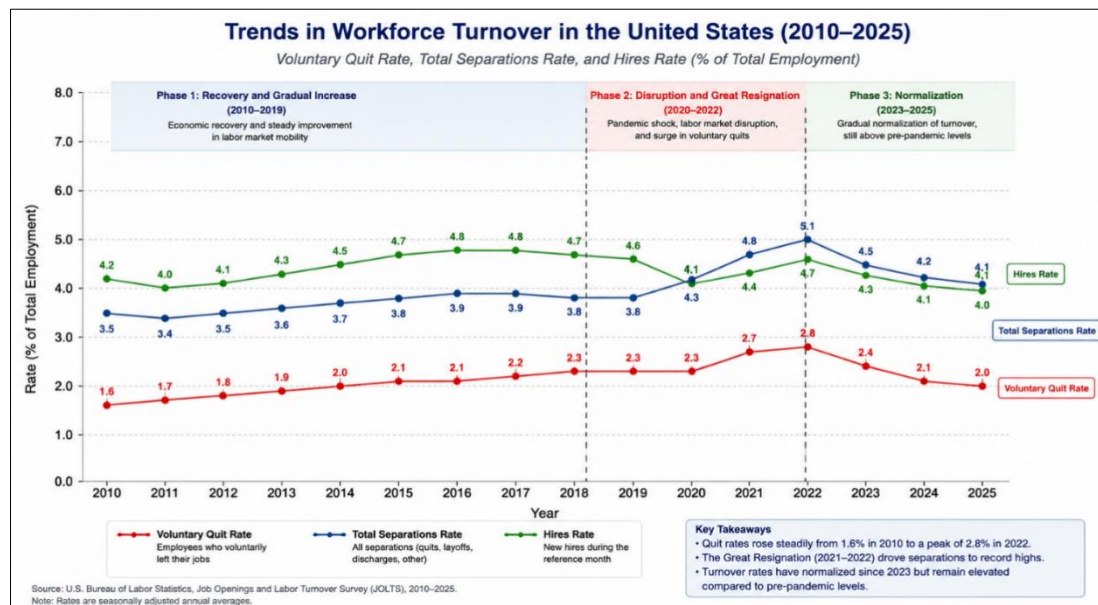


Fig 1: Trends in Workforce Turnover in the United States (2010–2025)

Annual Average U.S. Quit Rates(2021–2025)

Table 1 presents the annual average voluntary quit rates in the United States from 2021 to 2025 based on data from the Job Openings and Labor Turnover Survey (JOLTS). The quit rate measures the percentage of employees who voluntarily leave their jobs during a given period and is widely regarded as a key indicator of employee confidence in labor market conditions and workforce mobility. The declining trend after 2022 indicates a moderation in voluntary turnover as labor

market demand cooled and economic uncertainty increased. However, the persistence of quit rates around 2.0% suggests that employees continue to exercise substantial labor market mobility relative to historical norms. This finding is consistent with evidence that modern workers increasingly prioritize career development opportunities, workplace flexibility, and organizational culture when making employment decisions.

Table 1: Annual Average U.S. Quit Rates, 2021–2025

Year	Quit Rate (%)
2021	2.7
2022	2.8
2023	2.4
2024	2.1
2025	2.0

Source: U.S. Bureau of Labor Statistics, JOLTS Annual Average Quit Rates.

Industry Differences in Voluntary Quits

Table 2 reveals significant variation in voluntary turnover across major sectors of the U.S. economy, indicating that employee mobility is strongly influenced by industry-specific employment conditions, compensation structures, career opportunities, and workplace environments. The findings suggest that industries characterized by lower wages, demanding working conditions, and limited advancement opportunities tend to experience substantially higher turnover than sectors offering greater job security, structured career progression, and comprehensive benefits. The leisure and hospitality sector exhibit the highest turnover risk, reflecting the combined effects of seasonal employment, relatively low wages, irregular work schedules, and high levels of job-related stress. These characteristics reduce employee attachment to organizations and increase the likelihood of workers seeking alternative employment opportunities. Similarly, the retail trade sector experiences high turnover due to the flexibility of labor markets, relatively low barriers to job switching, and limited career advancement prospects.

Many employees in retail view their positions as temporary rather than long-term career opportunities, resulting in elevated quit rates.

In addition, healthcare and social assistance also demonstrate high turnover risk, although the underlying drivers differ from those in hospitality and retail. In this sector, employee exits are primarily associated with burnout, emotional exhaustion, staffing shortages, and increasing workload pressures. The persistence of high turnover despite relatively stable demand for healthcare services suggests that compensation alone is insufficient to retain workers when workplace stress becomes excessive. This finding highlights the importance of employee well-being initiatives, workload management, and supportive organizational practices in healthcare settings.

The professional and business services sector exhibits moderately high turnover, largely driven by career mobility and intense competition for skilled talent. Employees in occupations such as consulting, information technology, finance, and engineering often possess highly transferable

skills and are more likely to change employers in pursuit of higher compensation, career advancement, and professional development opportunities. This pattern supports Human Capital Theory, which posits that workers seek employment opportunities that maximize returns on their education, skills, and experience.

Furthermore, manufacturing records a moderate turnover risk, reflecting the stabilizing influence of specialized skills, structured employment arrangements, and relatively predictable career paths. The industry generally experiences lower employee mobility because occupation-specific skills increase switching costs and strengthen organizational attachment. Nevertheless, ongoing technological transformation and skill shortages continue to create retention challenges within some manufacturing subsectors. Government employment demonstrates the lowest turnover risk among the industries examined. This outcome can be attributed to greater employment security, comprehensive benefits packages, pension systems, and clearly defined promotion structures. The relatively low quit rates observed in the public sector support Social Exchange Theory, which

suggests that employees are more likely to remain with organizations that provide favorable working conditions, long-term stability, and reciprocal rewards.

The findings, therefore, demonstrate that voluntary turnover in the United States is highly industry-dependent and influenced by a complex interaction of economic, occupational, and organizational factors. While turnover in leisure and hospitality, retail trade, and healthcare is largely driven by workplace conditions and labor market characteristics, turnover in professional services is more closely associated with career advancement opportunities. The comparatively low turnover observed in government employment highlights the importance of job security and comprehensive benefits in promoting workforce stability. These results underscore the need for industry-specific retention strategies, as the factors driving employee departures vary substantially across sectors. Organizations that leverage workforce analytics to identify the dominant causes of turnover within their industries are likely to be more effective in developing targeted retention interventions and improving long-term workforce stability.

Table 2: Industries with the Highest Voluntary Quit Rates

Industry	Relative Turnover Risk	Key Drivers
Leisure and Hospitality	Very High	Seasonal employment, low wages, job stress
Retail Trade	High	Flexible labor markets, limited career progression
Healthcare and Social Assistance	High	Burnout, workload pressures
Professional and Business Services	Moderate-High	Career mobility and talent competition
Manufacturing	Moderate	Skills specialization and job stability
Government	Low	Employment security and benefits

Demographic Determinants of Workforce Turnover

Table 3 presents the major demographic and employment-related factors associated with workforce turnover in the United States. The findings indicate that employee turnover is influenced by a combination of individual characteristics, labor market opportunities, and organizational conditions. The direction of the relationships suggests that younger age and higher educational attainment increase the likelihood of voluntary turnover, whereas higher income, longer organizational tenure, access to employee benefits, and flexible work arrangements reduce turnover risk. The positive relationship between younger age and turnover indicates that younger employees are more likely to voluntarily change jobs than older workers. This pattern reflects the exploratory stage of career development during which younger individuals actively seek opportunities for skill acquisition, career advancement, salary growth, and professional development. Younger workers generally possess fewer family and financial constraints and are therefore more willing to pursue alternative employment opportunities. This finding is consistent with labor mobility theory, which suggests that employee movement tends to decline as workers progress through their careers and establish stronger organizational and occupational attachments.

Higher educational attainment also exhibits a positive association with turnover. Employees with advanced education often possess specialized skills and qualifications that are highly valued in the labor market, increasing their access to alternative employment opportunities. As a result, highly educated workers tend to have greater bargaining power and are more likely to switch employers in pursuit of higher compensation, better career prospects, and improved

working conditions. This finding supports Human Capital Theory, which posits that individuals seek to maximize returns on investments made in education, training, and professional development. In contrast, higher income demonstrates a negative relationship with turnover, suggesting that employees receiving competitive compensation are less likely to leave their organizations voluntarily. Higher earnings increase the opportunity cost of job separation and enhance employee satisfaction, thereby strengthening organizational commitment. This finding highlights the importance of competitive wage structures as a critical component of employee retention strategies. Organizations that offer compensation packages aligned with labor market expectations are generally better positioned to retain skilled and experienced employees.

Likewise, organizational tenure shows a strong negative relationship with turnover. Employees who have spent longer periods within an organization tend to develop stronger social networks, institutional knowledge, and emotional attachment to their workplaces. Longer tenure often coincides with increased job security, accumulated benefits, and opportunities for career progression, all of which reduce the likelihood of voluntary departure. The findings suggest that retention efforts aimed at strengthening employee engagement and organizational commitment may become increasingly effective as tenure increases. Access to employee benefits similarly reduces turnover risk. Benefits such as health insurance, retirement plans, paid leave, wellness programs, and other non-wage rewards contribute significantly to overall job satisfaction and employee well-being. Employees frequently evaluate total compensation packages rather than wages alone when making employment decisions. Consequently, organizations that provide

comprehensive benefits are more likely to retain workers and experience lower turnover rates than those offering limited employee support programs.

Furthermore, flexible work arrangements demonstrate a negative relationship with turnover, reflecting the growing importance of workplace flexibility in the modern labor market. The expansion of remote work, hybrid work models, flexible scheduling, and work-life balance initiatives has significantly influenced employee retention, particularly following the COVID-19 pandemic. Employees who are able to balance professional responsibilities with personal commitments generally report higher job satisfaction and lower intentions to leave their organizations. This finding suggests that workplace flexibility has evolved from a supplementary benefit to a strategic retention tool in many industries.

The results indicate that workforce turnover is driven by both

demographic characteristics and organizational factors. Younger and highly educated employees exhibit greater mobility because they possess stronger incentives and opportunities to seek alternative employment, while higher income, longer tenure, access to benefits, and flexible work arrangements serve as important retention mechanisms. These findings reinforce the principles of Human Capital Theory and Social Exchange Theory by demonstrating that employees are more likely to remain with organizations when the economic and non-economic rewards of staying outweigh the potential benefits of leaving. Consequently, organizations seeking to reduce turnover should adopt differentiated retention strategies that account for demographic differences within their workforce, while simultaneously strengthening compensation systems, employee benefits, career development pathways, and workplace flexibility programs.

Table 3: Major Demographic Factors Influencing Turnover

Variable	Relationship with Turnover
Younger Age	Positive
Higher Education	Positive
Higher Income	Negative
Longer Tenure	Negative
Access to Benefits	Negative
Flexible Work Arrangements	Negative

Source: Author's synthesis based on data from the Current Population Survey (CPS), American Community Survey (ACS), National Compensation Survey (NCS), and findings reported by Griffeth *et al.* (2000), Allen *et al.* (2010), Hausknecht and Trevor (2011), and Hom *et al.* (2017).

Compensation and Employee Retention

Table 4 presents the relative influence of key compensation components on employee retention in the United States labor market. The findings indicate that retention is shaped not only by direct monetary rewards but also by the broader compensation package offered by employers. Competitive wages, health insurance, retirement benefits, and flexible work arrangements exhibit the strongest retention effects, while paid leave and performance bonuses demonstrate moderate to moderately high influences on employees' decisions to remain with an organization. The high retention effect associated with competitive wages underscores the central role of financial compensation in workforce stability. Employees are more likely to remain with organizations that provide salaries aligned with industry standards and labor market expectations. Competitive pay not only improves job satisfaction but also increases the opportunity cost of leaving, thereby reducing voluntary turnover. In an increasingly competitive labor market, particularly following the Great Resignation, organizations offering below-market wages face greater risks of employee departures as workers seek better-paying opportunities elsewhere.

Health insurance emerges as another critical retention factor, reflecting the importance of employee well-being and financial security. Employer-sponsored health coverage reduces employees' exposure to healthcare-related financial risks and contributes significantly to overall job satisfaction. In the United States, where healthcare costs can be substantial, access to comprehensive health insurance often represents a major consideration in employment decisions. Consequently, organizations providing robust healthcare benefits are generally better positioned to attract and retain skilled employees. Retirement benefits also demonstrate a high retention effect, highlighting the importance of long-

term financial security in shaping employee commitment. Pension plans, 401(k) contributions, and other retirement savings programs encourage employees to maintain longer organizational tenures by increasing the long-term value of continued employment. These benefits are particularly influential among mid-career and older workers who prioritize financial stability and retirement preparedness. The findings suggest that retirement programs serve as both a reward mechanism and a retention tool by strengthening employees' attachment to their organizations.

Flexible work arrangements exhibit a similarly strong influence on retention, reflecting a fundamental shift in workforce expectations. The widespread adoption of remote work and hybrid work models following the COVID-19 pandemic has increased the importance of workplace flexibility as a determinant of job satisfaction and organizational commitment. Employees increasingly value autonomy in managing their work schedules and balancing professional responsibilities with personal obligations. Organizations that offer flexible work options are therefore more likely to retain talent, particularly among highly skilled professionals and knowledge workers. Paid leave demonstrates a moderate-to-high retention effect by supporting employee well-being, work-life balance, and overall job satisfaction. Benefits such as annual leave, sick leave, parental leave, and family-support policies help employees manage personal responsibilities without compromising employment stability. Although paid leave may not exert as strong an influence as wages or health insurance, it remains an important component of comprehensive employee reward systems and contributes to positive organizational perceptions. Performance bonuses exhibit a moderate retention effect relative to other compensation elements. While bonuses can

enhance motivation and reward high performance, their influence on long-term retention is generally weaker than that of fixed compensation and benefits. Employees often perceive bonuses as temporary or variable rewards that may fluctuate depending on organizational performance and economic conditions. Consequently, performance incentives are most effective when integrated into broader compensation

and career development strategies rather than being relied upon as standalone retention mechanisms. It is therefore worthy of note that compensation data from the Employer Costs for Employee Compensation (ECEC) program indicate that benefits constitute a substantial portion of total employee compensation (BLS, 2025) ^[16].

Table 4: Compensation Components Influencing Retention

Compensation Element	Retention Effect
Competitive Wages	High
Health Insurance	High
Retirement Benefits	High
Paid Leave	Moderate-High
Flexible Work Arrangements	High
Performance Bonuses	Moderate

Source: Compiled by the author from the U.S. Bureau of Labor Statistics National Compensation Survey (NCS), Employer Costs for Employee Compensation (ECEC), Current Population Survey (CPS), and empirical studies on compensation and retention (Allen *et al.*, 2010; Hausknecht & Trevor, 2011; Hom *et al.*, 2017; SHRM, 2023).

Predictive Analytics Methods for Turnover Prediction

Table 5 presents the major predictive analytics techniques currently employed in employee turnover research and workforce analytics. The findings demonstrate the growing reliance on data-driven approaches to identify employees at risk of leaving, understand turnover determinants, and support proactive retention strategies. The methods differ considerably in terms of predictive accuracy, interpretability, computational requirements, and practical applicability, highlighting the trade-offs organizations face when selecting appropriate analytical tools for workforce management.

Logistic regression remains one of the most widely used techniques in turnover research because of its simplicity, transparency, and interpretability. The method enables researchers and human resource practitioners to estimate the probability of employee turnover while simultaneously identifying the direction and magnitude of the effects of various predictors such as age, compensation, tenure, job satisfaction, and organizational commitment (Bardaweel *et al.* 2022) ^[2]. Although logistic regression often produces lower predictive accuracy than advanced machine learning algorithms, its ability to generate easily interpretable results makes it particularly valuable for policy formulation and managerial decision-making. Consequently, it continues to serve as a benchmark model in workforce analytics studies. Decision trees offer another popular approach due to their intuitive structure and ease of visualization. By classifying employees into distinct risk groups based on key characteristics, decision trees enable managers to understand the factors driving turnover and identify high-risk employees. The visual nature of decision trees facilitates communication of analytical findings to non-technical stakeholders. However, their sensitivity to data variation may result in unstable predictions, particularly when applied to complex workforce datasets with numerous interacting variables.

Random Forest models represent a significant advancement over individual decision trees by combining multiple trees into an ensemble framework. This approach substantially improves predictive performance and reduces the risk of overfitting. Random Forest algorithms are particularly effective in identifying complex interactions among demographic, organizational, and compensation-related variables that influence employee turnover. The strong

predictive capability of Random Forest models has made them increasingly popular in workforce analytics applications. However, their reduced interpretability compared with traditional statistical models may limit their usefulness when organizations require clear explanations for retention-related decisions.

Gradient Boosting methods are widely recognized as among the most accurate predictive techniques for employee turnover analysis. By sequentially improving model performance through iterative error correction, Gradient Boosting algorithms can capture subtle relationships within workforce data and generate highly reliable turnover predictions. Their superior predictive accuracy makes them particularly useful for large organizations seeking to identify employees at risk of departure before turnover occurs. Nevertheless, these models require substantial computational resources and technical expertise, which may limit their adoption among organizations with limited analytical capacity.

Neural Networks provide an even more sophisticated analytical framework capable of modeling highly complex and nonlinear relationships among workforce variables. These models can process large volumes of structured and unstructured data, including employee performance records, engagement surveys, communication patterns, and behavioral indicators. As a result, Neural Networks often achieve high levels of predictive accuracy. However, their “black-box” nature presents a significant challenge because managers may find it difficult to understand how predictions are generated. In highly regulated environments where transparency and accountability are essential, this limitation may reduce organizational willingness to rely exclusively on neural network-based predictions.

Survival Analysis occupies a unique position among turnover prediction techniques because it focuses not only on whether employees will leave but also on when departures are likely to occur. This temporal dimension makes survival models particularly valuable for workforce planning and succession management. By estimating the probability of employee retention over time, organizations can better anticipate staffing needs and implement targeted interventions before turnover occurs. Despite its usefulness, Survival Analysis requires extensive longitudinal data and sophisticated

modeling procedures, making it more data-intensive than many alternative approaches.

However, the findings together indicate a clear evolution from traditional statistical methods toward advanced machine learning approaches in turnover prediction. While machine learning techniques such as Random Forest, Gradient Boosting, and Neural Networks generally outperform conventional methods in predictive accuracy, traditional approaches such as Logistic Regression and Survival Analysis remain important because of their interpretability and practical relevance. This trade-off between predictive performance and explainability represents one of the central challenges in contemporary workforce analytics. The

findings further suggest that no single method is universally superior for all organizational contexts. Instead, the choice of analytical technique should depend on organizational objectives, data availability, technical expertise, and the need for interpretability. For example, organizations primarily interested in understanding turnover drivers may benefit from Logistic Regression and Survival Analysis, whereas those focused on maximizing predictive accuracy may prefer ensemble machine learning methods. Increasingly, researchers advocate hybrid approaches that combine interpretable statistical models with advanced machine learning algorithms to balance predictive performance and managerial usability.

Table 5: Common Predictive Analytics Methods for Turnover Analysis

Method	Primary Strength	Limitation
Logistic Regression	Interpretability	Lower predictive accuracy
Decision Trees	Easy visualization	Sensitive to data variation
Random Forest	High predictive performance	Reduced interpretability
Gradient Boosting	Excellent prediction accuracy	Computational complexity
Neural Networks	Captures complex relationships	Black-box nature
Survival Analysis	Models timing of exits	Data intensive

Conclusion and Recommendations

This paper examined workforce turnover trends, determinants, and data-driven retention strategies in the United States labor market between 2010 and 2025 using evidence from major national datasets, including the Job Openings and Labor Turnover Survey (JOLTS), Current Population Survey (CPS), American Community Survey (ACS), Occupational Information Network (O*NET), and National Compensation Survey (NCS). The findings reveal that workforce turnover has become an increasingly important organizational and policy concern, particularly following the unprecedented labor mobility observed during the Great Resignation period of 2021–2022. Although voluntary quit rates have moderated since 2023, employee mobility remains higher than many pre-pandemic levels, indicating that retention challenges are likely to persist in the foreseeable future.

The paper demonstrates that turnover patterns vary significantly across industries and demographic groups. Leisure and hospitality, retail trade, and healthcare and social assistance consistently experience the highest turnover risks due to factors such as low wages, burnout, staffing shortages, workplace stress, and limited career progression opportunities. In contrast, sectors characterized by greater employment security, structured career pathways, and comprehensive benefits, such as government employment, generally experience lower turnover rates. The findings further show that younger and highly educated employees exhibit greater labor mobility, while higher income, longer organizational tenure, access to benefits, and flexible work arrangements reduce the likelihood of voluntary departures. Compensation emerged as a critical determinant of employee retention, with competitive wages, health insurance, retirement benefits, and workplace flexibility exerting the strongest influence on employees' decisions to remain with their organizations. The evidence also highlights the growing role of workforce analytics and predictive modeling in turnover management. While traditional approaches such as Logistic Regression and Survival Analysis remain valuable because of their interpretability, advanced machine learning techniques such as Random Forest, Gradient Boosting, and

Neural Networks provide superior predictive performance and enable organizations to proactively identify employees at risk of departure.

The findings support the propositions of Human Capital Theory and Social Exchange Theory by demonstrating that employees are more likely to remain with organizations that provide attractive economic rewards, supportive work environments, career development opportunities, and long-term employment security. Consequently, organizations seeking to reduce turnover should adopt integrated retention strategies that combine competitive compensation, employee well-being initiatives, flexible work arrangements, career advancement opportunities, and evidence-based workforce management practices.

From a policy perspective, continued investment in workforce development programs, employee training, labor market intelligence systems, and family-friendly workplace policies will be essential for enhancing workforce stability and productivity. Equally important is the adoption of advanced workforce analytics tools that enable organizations to move from reactive turnover management toward predictive and preventive retention strategies. Future research should continue to explore the implications of artificial intelligence, digital transformation, remote work, and evolving workforce expectations on employee turnover and retention. Overall, sustainable workforce retention in the modern labor market will require a strategic integration of human resource practices, organizational support systems, and data-driven decision-making frameworks capable of responding to rapidly changing employment dynamics.

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