Remote Work Salary Analysis: Trends and Insights

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Milestone 2 – Draft of White Paper

Date: March 30, 2025

Remote work has become a defining feature of the modern workforce, bringing flexibility and global access to talent. However, it has also created uncertainty around how compensation is determined for remote positions. This white paper explores salary trends for remote jobs using data sourced from Kaggle, Glassdoor, and Indeed, analyzing differences by job title, region, experience level, and employment type. The goal is to support informed decision-making for job seekers and companies alike.

To begin this analysis, three datasets were cleaned, standardized, and merged using Python libraries such as Pandas, Seaborn, and Matplotlib. A structured methodology was followed throughout the project to ensure clarity and consistency. The data included global remote job postings with structured salary data, U.S.-based listings from Glassdoor, and India-based salary information from Indeed. The methodology included the following key steps:

1. Data Collection: Three datasets were sourced from Kaggle, Glassdoor, and Indeed. These datasets contained remote job listings with varying degrees of detail on job titles, locations, salary estimates, and employment types.

2. Data Cleaning and Preprocessing: Each dataset had unique column structures and naming conventions. Using Pandas, columns were renamed to a standardized format. Missing values were handled, and new columns such as 'Salary (USD)' or 'Salary Estimate' were introduced where needed. Duplicate and irrelevant records were removed.

3. Data Integration: Cleaned datasets were combined into one comprehensive dataframe. Placeholder columns were added to maintain structural integrity where a particular dataset lacked a specific field.

4. **Exploratory Data Analysis (EDA)**: Seaborn and Matplotlib were used to visualize salary distributions, compare averages across categories (like experience level and employment type), and highlight geographic differences.

5. **Insight Extraction**: Summary statistics, frequency distributions, and top-ranked job roles were used to interpret patterns and build the basis for recommendations.

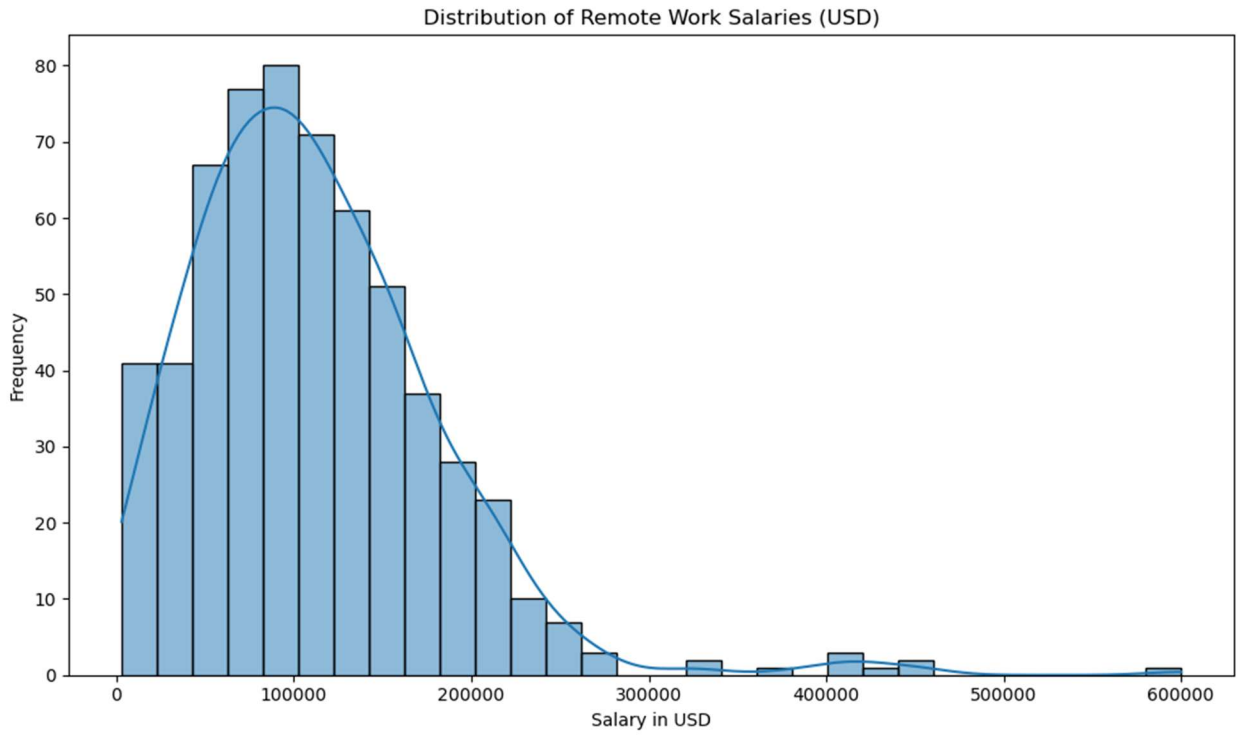

Figure 1

One of the most informative visuals is the distribution of remote work salaries (Figure 1). It shows that most salaries fall between $60,000 and $140,000, with a peak around $100,000. This right-skewed distribution highlights a common cluster of mid-range salaries while also revealing outliers in the $300K–$600K range for specialized roles. These high-paying outliers often correspond to leadership and advanced engineering positions.

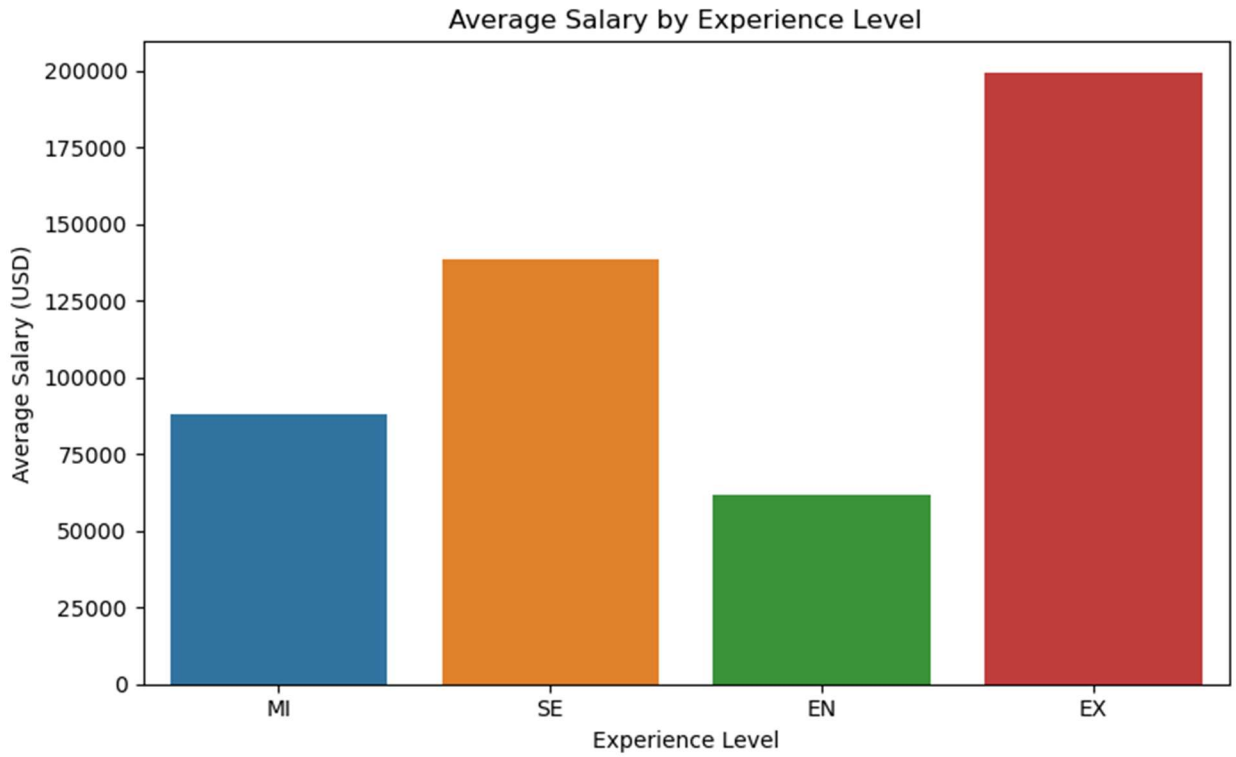

Figure2

Figure 2 displays the average salary by experience level, where we see that Executive-level roles average nearly $200,000 annually. Senior professionals average about $139,000, Mid-level professionals around $88,000, and Entry-level roles approximately $62,000. The data shows that the job market for remote work heavily favors experienced professionals. Senior-level roles make up nearly half of all listings (46%), while Executive roles are rare (4%). This suggests that remote job opportunities are more likely to be entrusted to employees with a proven track record and ability to work independently.

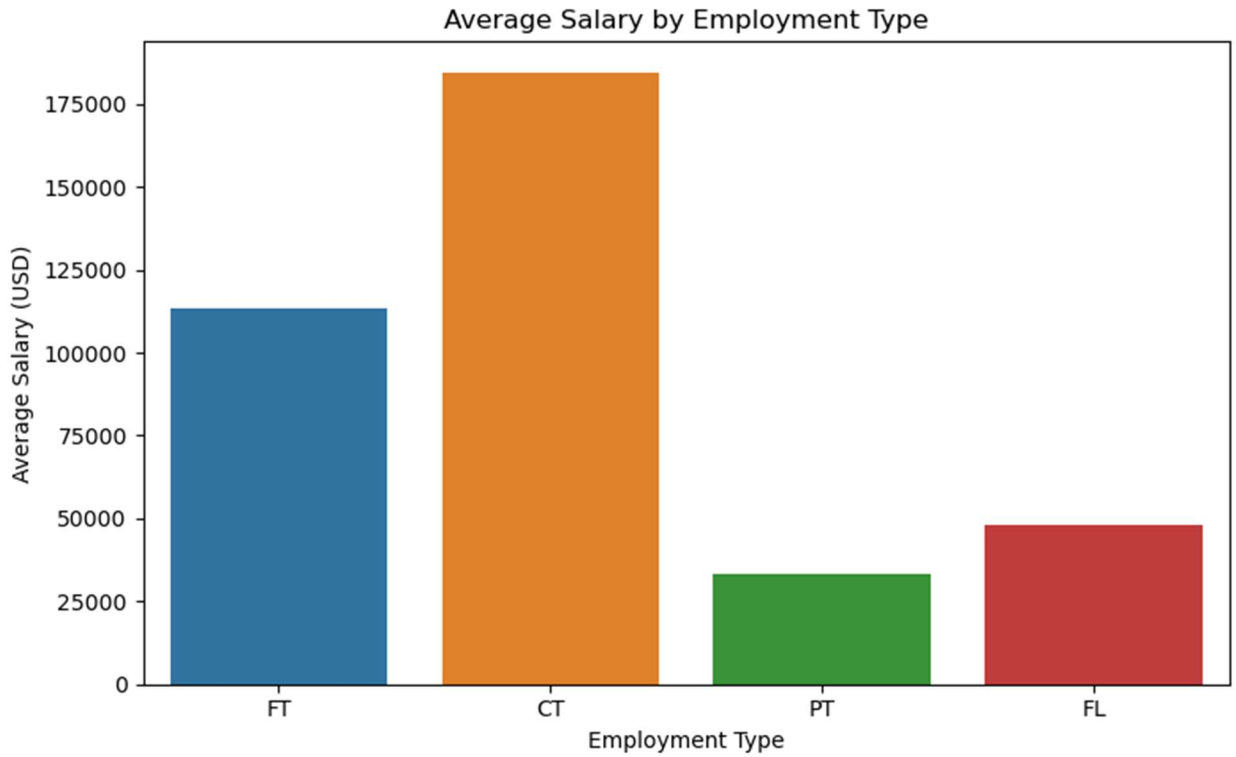

Figure3

In Figure 3, the data is segmented by employment type. Full-time positions dominate the dataset, but contract roles command the highest average salaries—over $184,000. Freelancers and part-timers trail significantly with average salaries of $48,000 and $33,000 respectively. While contract work represents only 1% of listings, it offers the potential for significantly higher compensation. This pattern could reflect the nature of project-based engagements where companies hire highly skilled contractors for urgent or niche work.

Figure 4 explores salary distribution by data source, which in this case primarily reflects the Global dataset since salary values in USD were only available from that source. Despite some outliers, most salaries fell within a relatively consistent interquartile range, reinforcing the general reliability of the Global data for compensation analysis. This consistency across global salary reporting offers some assurance that the insights drawn from this source are grounded in widespread patterns.

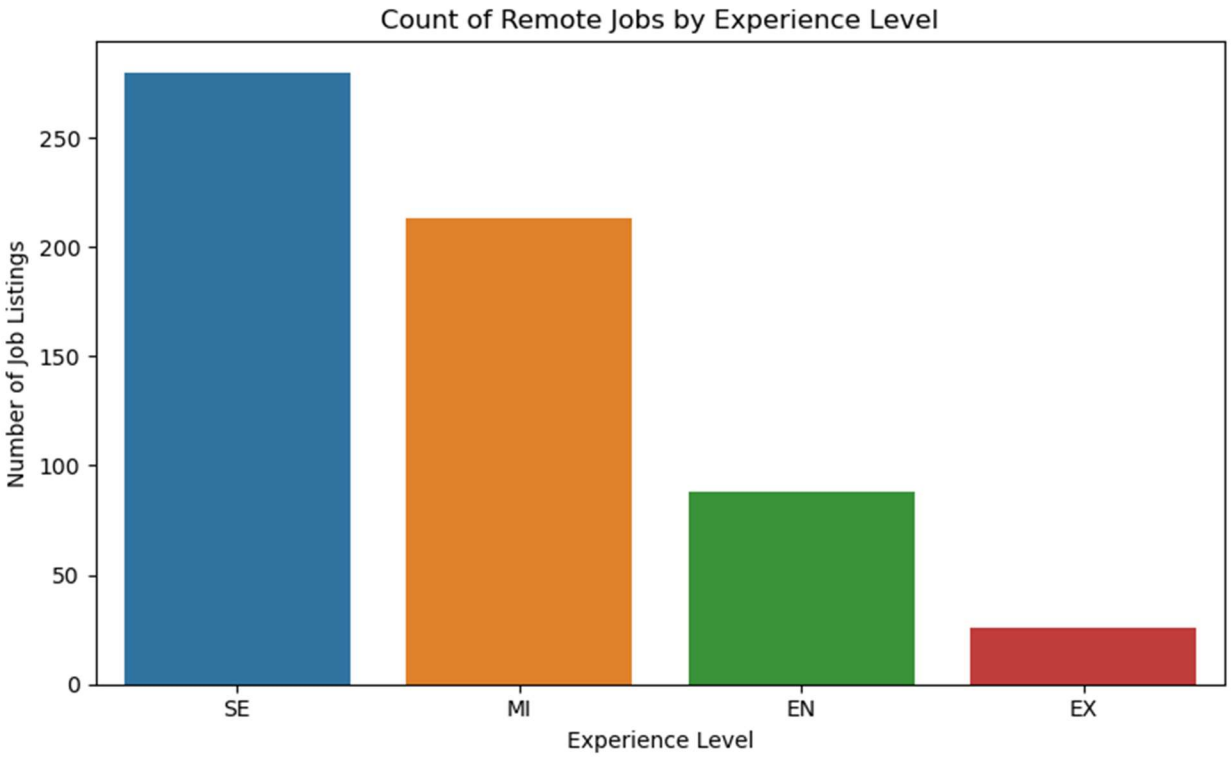

Figure 4

The count of remote jobs by experience level is presented in Figure 4. It supports earlier findings that companies are hiring more Mid and Senior-level professionals. Mid-level roles accounted for 35% of listings and Senior-level for 46%. Entry-level opportunities made up just 14%, while Executive-level roles were the least common at 4%. This reinforces the importance of experience and specialized knowledge in securing remote positions, especially when employers may be relying on team members to operate with limited supervision.

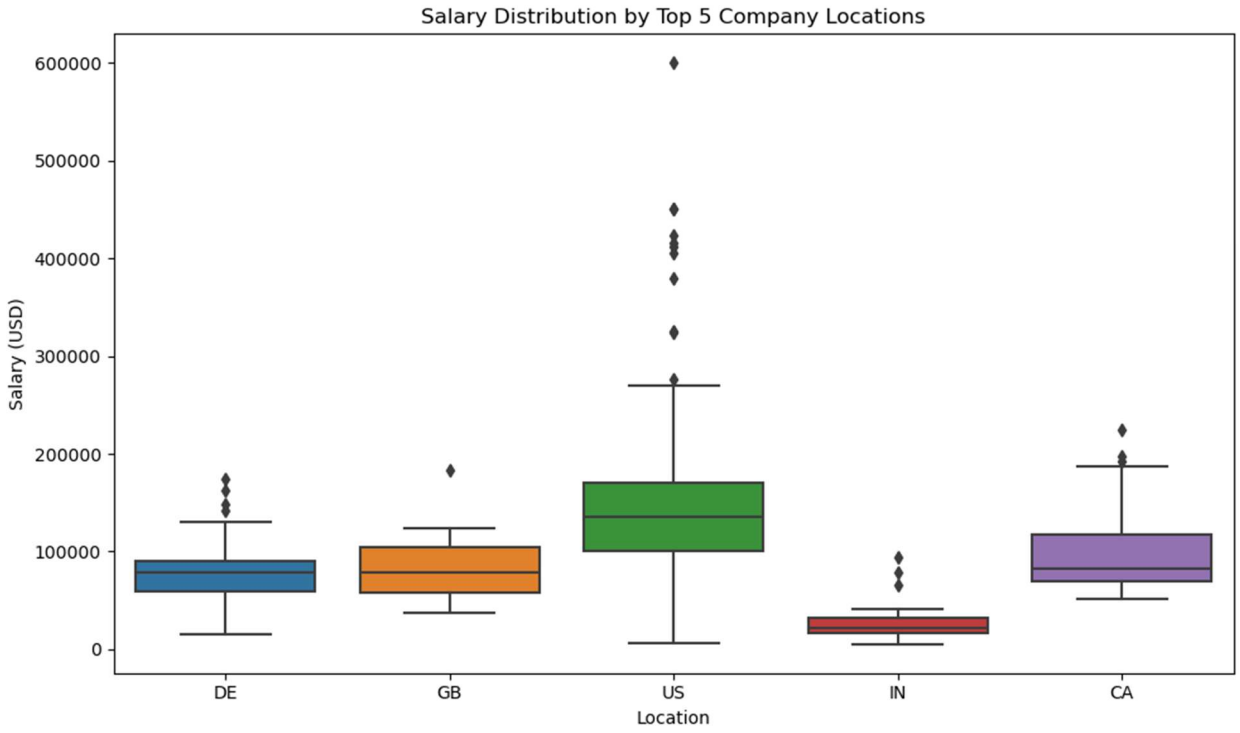

Figure 5

Lastly, Figure 5 compares salary trends by location. The United States clearly leads in both the number of listings and salary ranges, offering the highest median salaries across the board. Countries like the United Kingdom, Canada, and Germany show similar patterns but at slightly lower salary brackets. In contrast, India lags behind with an average salary of just over $6,000 USD. This significant difference emphasizes the regional disparities in compensation for remote work and reflects differing economic conditions and labor market expectations.

This analysis uncovered several challenges, including missing or unstructured salary data, inconsistent location formatting, and the presence of self-reported values that may skew accuracy. Additionally, some job titles were highly specific or inconsistent, requiring normalization to group related roles. Despite these limitations, the project provides meaningful insights about how remote salaries vary based on clear job-related factors such as role, experience, and region.

Ethical considerations were taken seriously, with no personally identifiable information (PII) included. All data used was publicly available and aggregated to ensure privacy. Any analysis was interpreted in context, recognizing that cost of living and labor regulations vary across regions. Transparency in methodology and respect for data integrity guided each step of this project.

In conclusion, remote work offers exciting opportunities, but also introduces ambiguity in compensation practices. This analysis helps uncover what influences pay and provides a valuable reference point for setting expectations in a remote-first job market. Organizations can use these insights to remain competitive and equitable, while professionals can better evaluate the value of their roles across geographies and experience levels. As the future of work continues to evolve, regular analysis of salary trends will remain essential for ensuring fairness and attracting top talent.

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Appendix

- Figures
    1. Distribution of Remote Work Salaries (USD)
    2. Average Salary by Experience Level
    3. Average Salary by Employment Type
    4. Count of Remote Jobs by Experience Level
    5. Salary Distribution by Top 5 Company Locations
- Code Reference: Python scripts for data cleaning, merging, and visualization provided in Remote Salary Analysis
- Summary Tables: Experience level counts, salary statistics, and top-paying job titles

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Questions for Milestone 4

1. How current is the data, and what is the timeframe?
2. Are salaries adjusted for cost of living by region?
3. How were salaries normalized across currencies?
4. What industries were most represented in the datasets?
5. Are there any visible gender or diversity-related trends?
6. How frequently is this kind of analysis recommended?
7. Can this approach be turned into a live dashboard?

8. How do contract vs. full-time roles affect company costs?

9. Is salary the most effective measure of job quality?

10. How do outliers affect the interpretation of results?