DURHAM COLLEGE
SUCCESS MATTERS

Bridging The Skilled Labor Gap:

A Data-Driven Approach to Eradicate Job Shortages in Canada

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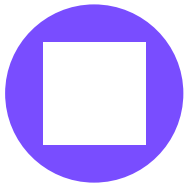
Content



BACKGROUND

CHALLENGE AND OPPORTUNITY

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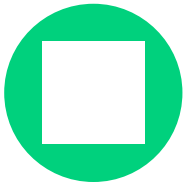
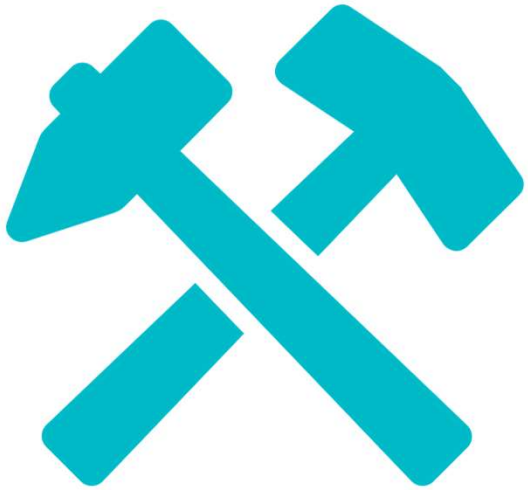


IMPLICATIONS

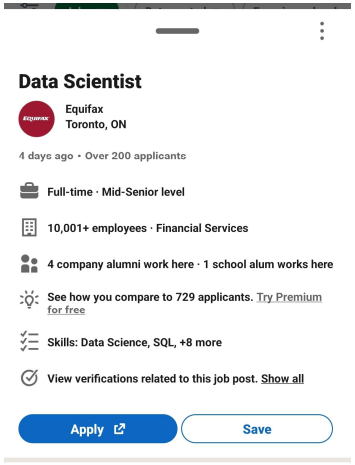
RECOMMENDATIONS

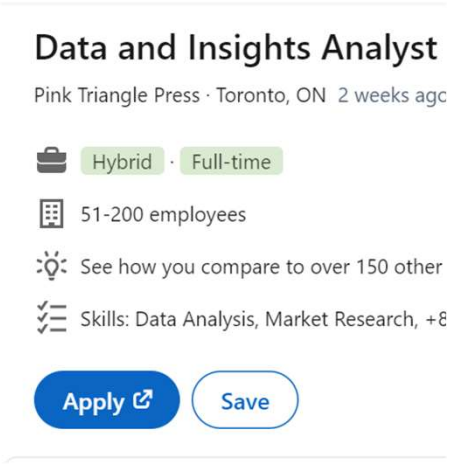
Addressing Job Shortages in Canada through Data Mining

Our presentation aims to address the issue of job shortages in Canada by leveraging data mining techniques. Our project focuses on matching the surplus of skilled labor with the right job opportunities, which will foster economic growth and workforce sustainability.



Understanding the Job Shortage Crisis in Canada- opportunity





Canada is facing a significant challenge of mismatched labor markets. Skilled workers are unable to find suitable employment and are settling for unskilled labor **category**.

The problem not only impacts people's livelihoods but also impedes economic progress and innovation.

The Dual Challenge and Opportunity

The main challenge is to match the demands of the labor market with the available skilled workforce, which often results in high unemployment and underutilization of talent. However, by utilizing data analytics to identify labor market trends and mismatches, we can offer a strategic approach to workforce planning and development. Addressing this issue can lead to an improved quality of life, reduced unemployment rates, and create more robust economy.

Data Mining Approach to Labor Market Analysis

Our approach involved using supervised learning techniques to predict and analyze future labor market trends. We have focused on both predictive and explanatory aspects of data mining to understand and forecast labor market dynamics.

Our goal is to develop a predictive model that can forecast future unemployment rates and skill demands in various sectors. This model will be deployed to help individuals and organizations make informed decisions about their career paths and workforce planning.

Preparing Data for Analysis

As part of the data preparation, we followed a cleansing process which included removing irrelevant columns, renaming columns for better clarity, and handling the missing data. Our ETL process involved extracting, transforming, and loading the data for effective analysis, using tools like Python and SQL. During the process, we faced some challenges in maintaining data consistency and completeness. However, we addressed these challenges through meticulous data cleaning.

Comprehensive Data for In-Depth Analysis

1.**Monthly labor market statistics from Canada's national database, covering 2018 to 2022, include employment rates, unemployment rates, and labor force participation segmented by age, gender, and industry.**

https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1410028703

2. **Educational Data**

https://www150.statcan.gc.ca/n1/daily-quotidien/221130/dq221130a-eng.htm

3. **Industry Demand**

https://www.statcan.gc.ca/en/subjects-start/labour_/labour-shortage-trends-canada

4. **Geographical Data**

https://www150.statcan.gc.ca/n1/pub/75-006-x/2017001/article/54878-eng.htm

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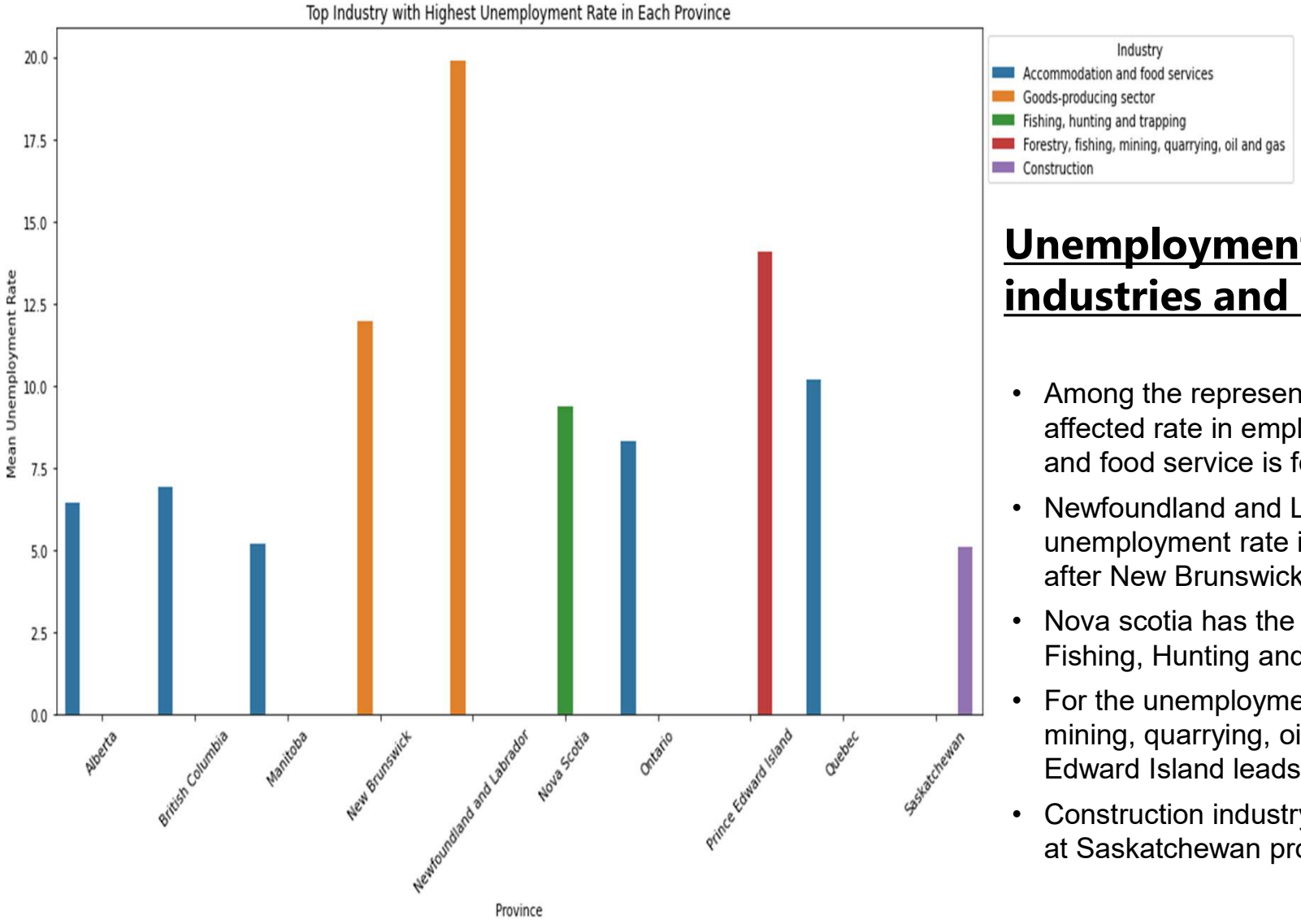
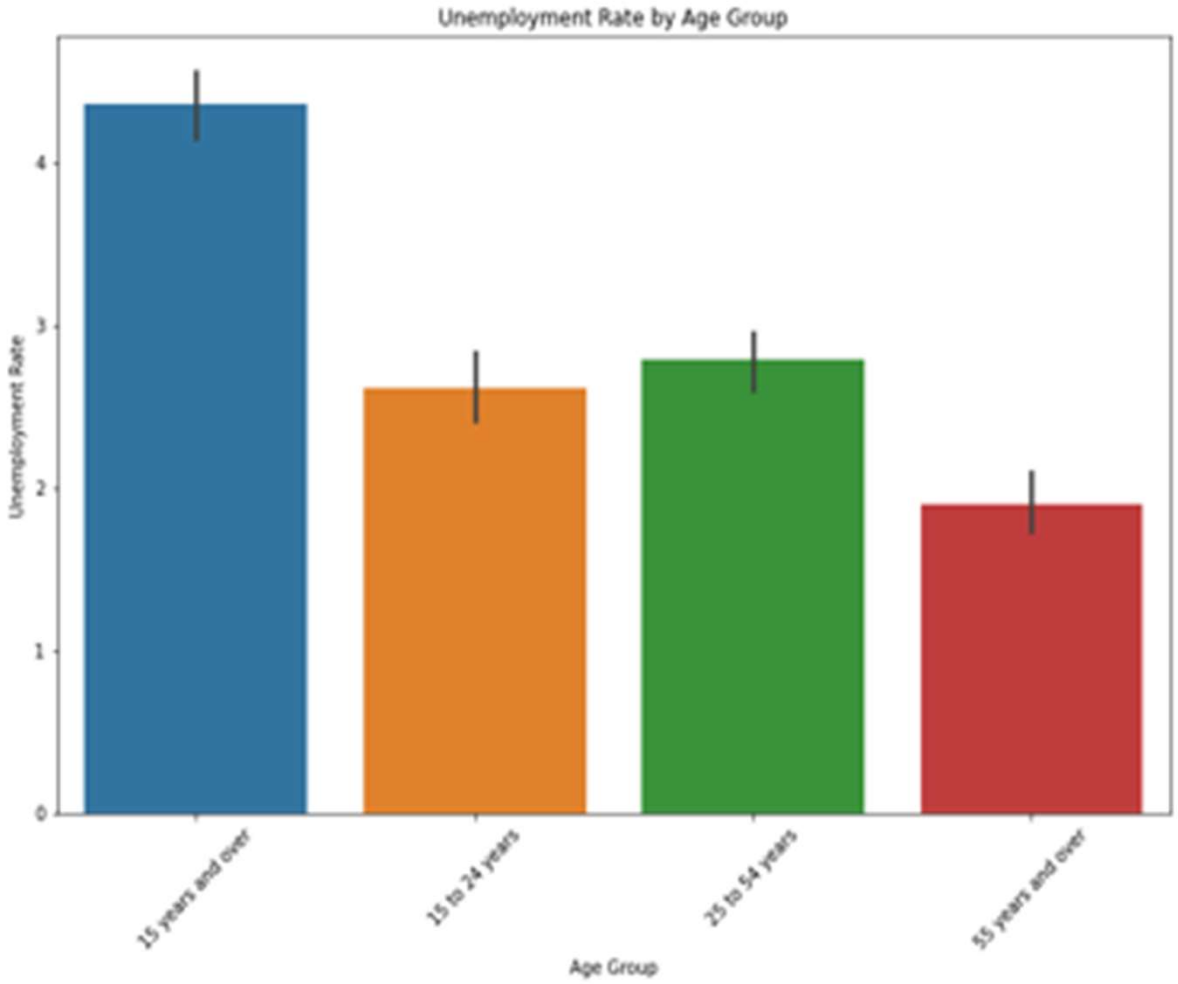
Out[9]:

	REF_DATE	GEO	Industry	Sex	Age group	Unemployment Rate
0	2018	Newfoundland and Labrador	Total, all industries	Males	15 years and over	16.9
1	2019	Newfoundland and Labrador	Total, all industries	Males	15 years and over	14.3
2	2020	Newfoundland and Labrador	Total, all industries	Males	15 years and over	17.8
3	2021	Newfoundland and Labrador	Total, all industries	Males	15 years and over	16.2
4	2022	Newfoundland and Labrador	Total, all industries	Males	15 years and over	13.7



Unemployment rate based on industries and provinces

- Among the represented provinces, the most affected rate in employment in accommodation and food service is found in Quebec.
- Newfoundland and Labrador is facing the highest unemployment rate in goods-producing sector after New Brunswick.
- Nova scotia has the highest unemployment rate in Fishing, Hunting and Trapping sector.
- For the unemployment rate in Forestry, fishing, mining, quarrying, oil and gas industry, Prince Edward Island leads based on the data.
- Construction industry faces a dip in employment at Saskatchewan province.



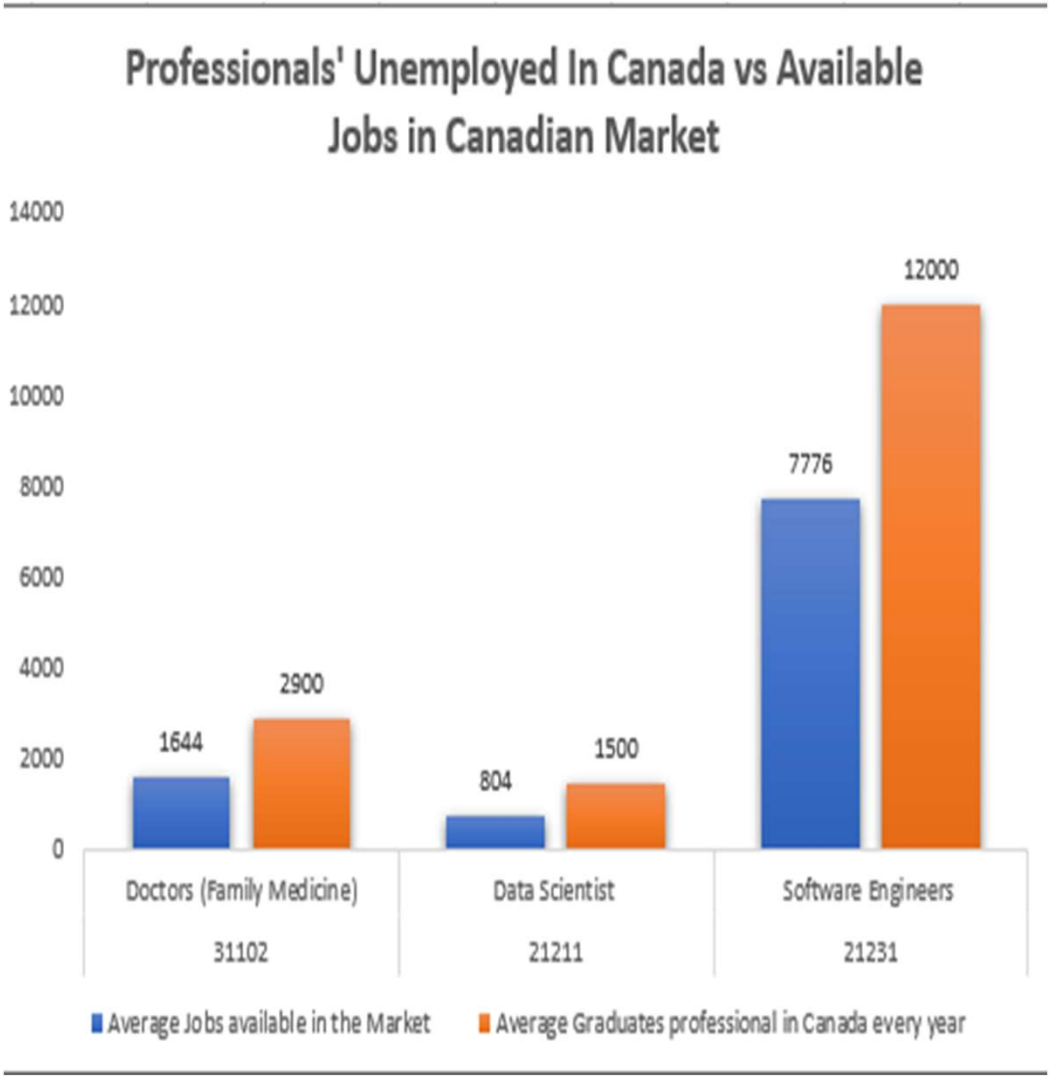
Unemployment rate based on age group

- The least affected age group of employment is 55 years and more as there are varied government implemented plans for senior citizens.
- The more affected one is between 15 to 20 years age group. This may be due to considerations in work experience as the organizations look for experienced individuals.

Analytical Methods and Findings

In our study, we utilized various analytical methods to gain insights into the current employment landscape. Predictive modeling was employed to forecast unemployment trends and identify future skill requirements.

We also conducted a skills gap analysis to match job requirements with available skills, highlighting areas of surplus and deficit. To present our findings in a clear and concise manner, we employed visualizations that demonstrated employment and unemployment trends over time.



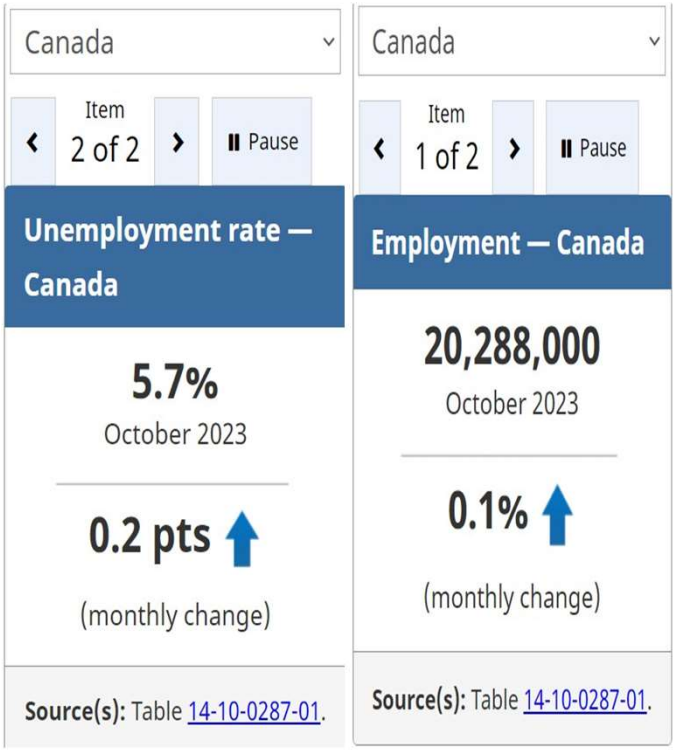
The line chart summarizes the average number of jobs available in the market versus the average number of professional graduates each year for three specific professions in Canada.

We can see a significant surplus of graduates compared to the jobs available. For each profession, there are far more graduates per year than there are average jobs available.

This indicates a potential issue of unemployment or underemployment among these professions due to a surplus of skilled individuals in comparison to the job market's capacity to employ them.

Evaluation-Measuring Success and Impact

Analyzing	Analyzing key metrics such as changes in unemployment rate, labor force participation, and wage growth can provide insight into the success and impact of a labor market.
Comparing	Comparing current findings with historical labor market trends can serve as a benchmark for measuring changes and impacts.
Evaluating	Evaluating the balance between job availability and skilled labor availability can help pinpoint areas of mismatch and inform potential solutions.

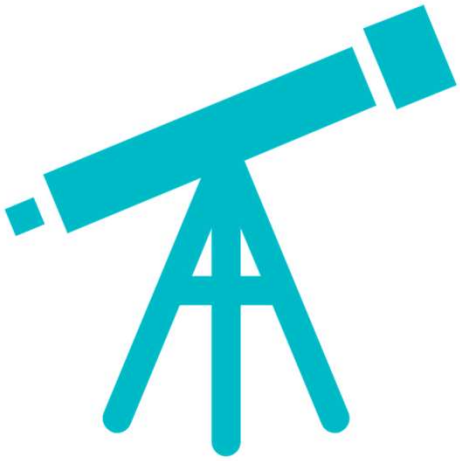


Implications-Implications for Policy and Strategy

The insights from the project can be used to guide policy and business decisions and inform the development of effective strategies.

The project recommends policy reforms that can address the challenges faced by the labor market, targeted workforce development programs that can help workers acquire the skills they need to succeed, and strategic job creation initiatives that can stimulate economic growth and create new opportunities for workers.

By implementing these recommendations, policymakers and business leaders can work together to build a stronger, more resilient labor market that benefits everyone.



Forward-Looking Recommendations and Conclusion

We suggest advocating for the continuous monitoring of labor market data, aligning education with market demands, and incentivizing businesses to align their hiring practices with skill availability.

Regarding future data collection, we recommend emphasizing the need for real-time data updates and expanded demographic analysis to enable more precise forecasting.

In conclusion, it is essential to emphasize the critical role of data-driven strategies in effectively addressing job shortages and enhancing Canada's labor market efficiency.