Analysis of Temporary Foreign Worker Program (TFWP) LMIA Trends

1. Introduction

Over the decades, the Temporary Foreign Worker Program (TFWP) has been shaped by economic fluctuations, political priorities, and unexpected events like the COVID-19 pandemic. Industries such as agriculture, healthcare, and hospitality have increasingly relied on temporary foreign workers to address labor shortages, while simplified LMIA processing during the pandemic influenced application trends.

This study employs a multi-tool analytical approach to dissect LMIA datasets from 2017 to 2023 (yearly and quarterly). **SAP Analytics Cloud (SAC)** and **Microsoft Excel** will handle foundational tasks: Excel will clean and preprocess data (e.g., removing duplicates, addressing missing values), while SAC merges datasets, generates interactive dashboards, and applies predictive models to forecast trends. Complementing these, **Domo**, a cloud-based analytics platform, will automate complex workflows via ETL (Extract, Transform, Load) pipelines, build AI-enhanced dashboards, and enable real-time comparisons of temporal, occupational, and geographic patterns.

By integrating these tools, the analysis will explore four dimensions and project LMIA approval trends through 2027:
   Temporal trends: Yearly/quarterly shifts in LMIA approvals, correlated with policy changes (e.g., pandemic-era simplifications) and economic cycles.
   Occupational demand: Dominant sectors and emerging roles requiring foreign labor, with insights into employer reliance on TFWs.
   Geographic disparities: Provincial and urban/rural divides in LMIA distribution, highlighting regional labor market imbalances.
   Employer behavior: Industries and businesses with the highest LMIA utilization, assessing compliance and sector-specific dependencies.

By leveraging SAC's predictive analytics and Domo's AI-driven forecasting capabilities, the study will extend historical trends to model future scenarios, anticipating how labor demands, policy changes, and economic shifts could influence LMIA approvals by 2027. These projections will provide policymakers, employers, and labor advocates with actionable insights to refine TFWP governance, address regional disparities, and align the program with Canada's long-term labor market needs and evolving socio-economic priorities.

2. Dataset Description

The dataset for this project comes from the Open Canada government website and includes information on employers who received a Positive Labour Market Impact Assessment (LMIA) under the Temporary Foreign Worker Program (TFWP). A positive LMIA indicates that hiring a temporary foreign worker (TFW) is expected to have a positive or neutral impact on the Canadian labor market. The dataset does not track work permits issued or the actual entry of TFWs into Canada.
The dataset consists of eight tables. Seven tables are categorized by time, covering data from Q4 2017 to Q4 2023, each containing six columns and ranging from 10,000

to 20,000 rows. These tables provide detailed information on LMIA approvals over time. (Figure 1)

The eighth table is categorized by province, containing eight columns and 16 rows, offering a regional breakdown of LMIA approvals (Figure 2). Due to privacy considerations, the dataset excludes personal employer names and certain business names. Additionally, from Q1 2018 to Q3 2023, LMIAs supporting Permanent Residence (PR) were not included, but starting from Q4 2023, they are now part of the published lists. This dataset allows for an in-depth analysis of labor market trends, employer demand, and the role of temporary foreign workers across different industries and regions in Canada.
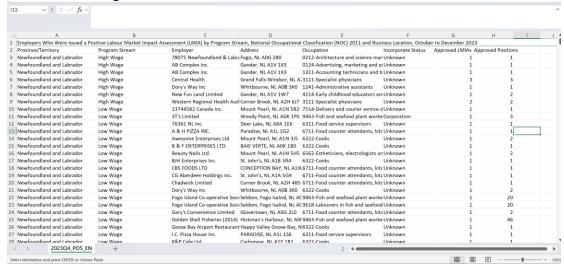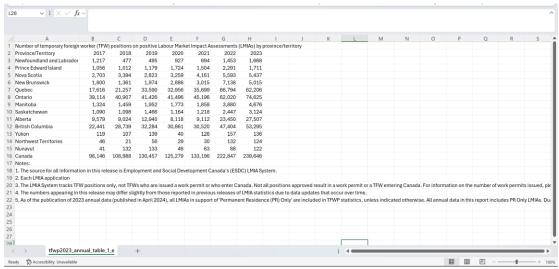

Figure 1

Figure 2

3.Research Questions

2.1. General Trends

How has the number of positive LMIAs changed over time (year-to-year & quarter-to-quarter)?

Are there correlations with economic or policy changes?
 (e.g., COVID-19)?

2. 2 Job Demand Trends
Which occupations/ have the highest number of LMIA approvals?
How change over time?

2.3 Employer & Business Analysis
Which companies or industries apply for LMIAs the most?

2.4 Geographic Trends
Which provinces/cities have the most LMIA approvals?
Are there regional differences in the types of jobs requiring foreign workers?

2.5 Advanced Analysis: predict the trend by 2027

4.Data Analytics Tool
Tools:
To analyze LMIA trends from 2017 to 2023, we will use a combination of internal tools (which are covered in class) and an external tool (Chosen for this project). These tools will help with data cleaning, merging, visualization, and trend analysis.

Internal Tools
Microsoft Excel
  As the foundational tool for data preparation, Excel will:
  - Clean and preprocess raw LMIA data (e.g., removing duplicates, resolving missing values).
  - Generate summary statistics to identify initial patterns in occupational demand and employer behavior.

SAP Analytics Cloud (SAC)
  SAC's advanced analytics capabilities will extend Excel's outputs by:
  - Merging quarterly and yearly datasets through built-in join functions to unify temporal analysis.
  - Creating interactive dashboards to visualize time-series trends (e.g., COVID-19 impacts on LMIA volumes) and sector-specific labor demands.
  - Applying predictive models to forecast occupational or regional LMIA trends up to 2027.

External Tool
 Domo
  Domo complements SAC by automating complex workflows and enhancing geographic analysis:
  - Streamlining dataset integration via ETL (Extract, Transform, Load) pipelines, ensuring scalability for large LMIA volumes.
  - Building AI-driven dashboards to dynamically explore regional disparities (e.g., province/city approval rates) and employer clustering.
  - Automating report generation for quarterly policy impact comparisons (e.g., pre/post-pandemic LMIA processing rules).

Tool Comparison Framework
To optimize tool selection for future TFWP analyses, we will evaluate:

Data Integration Efficiency: Contrast SAC's join functions with Domo's ETL pipelines in merging multi-year datasets.

Visualization Flexibility: Compare SAC's predictive dashboards against Domo's AI-powered real-time visualizations.

Automation & Scalability: Assess Domo's automated reporting versus SAC's manual adjustments for long-term trend monitoring.