

Investigating Labor Market Transformations in Northern Sweden

A Novel Data-Driven Approach

Introduction and Aim of the Project

My research project investigates labor market transformations, with a focus on Sweden's northern coast. Despite the region's recent significant industrial investments, knowledge gaps persist regarding labor market demand, resulting in uncertainties about the supply of skills. Current aggregated data sources, typically utilized by researchers, fail to provide detailed insights into labor market demand (Puga 2010). My project aims to bridge this gap by leveraging granular data to understand evolving workforce requirements and the potential impact of industrial development on the regional labor market.

This novel approach not only addresses a crucial scientific problem but also informs policymakers and stakeholders about labor market trends to support strategic planning and development in the economy.

The Importance of Studying the Northern Coastal Labor Market

The choice of the northern coastal labor market as the study area is particularly relevant for several reasons. Firstly, the region is characterized by its unique economic landscape, with major industries such as forestry, mining, and energy production playing a significant role. Secondly, the region is currently undergoing substantial industrial investments, which have the potential to reshape the labor market and create new opportunities for the local workforce. Finally, the northern coastal regions of Sweden face unique challenges, such as an aging population, outmigration, and skills mismatches (Lundholm 2007), which warrant a comprehensive understanding of the labor market dynamics to ensure sustainable regional development.

Data Collection and Methods

To gain insights into the labor demand, I utilize a unique data source: job advertisements. By analyzing over 10 million job ads, I can assess employer demands and the roles created, offering a comprehensive view of the economic landscape. This dataset enables me to uncover trends and dynamics often obscured by traditional aggregated data sources.

To process and analyze this data, I employ a temporal-contextual machine learning technique (Rosin et al. 2022), which involves fine-tuning a Swedish language model on the job advertisements. By doing so, I can extract valuable insights about labor demand, skill requirements, and emerging trends. This approach utilizes the high-performance computing capabilities of the Kebnekaise supercomputer at Umeå University, enabling the efficient handling of vast amounts of data and complex analyses.

Final Remarks

In conclusion, my research project contributes to the economic geography field by providing an in-depth understanding of labor market transformations in Sweden's

northern coastal regions. The integration of advanced machine learning techniques and high-performance computing infrastructure facilitates the extraction of valuable insights from granular data sources, ultimately supporting informed decision-making and regional development strategies.

REFERENCES

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- Lundholm, E. (2007). "Are movers still the same? Characteristics of interregional migrants in Sweden 1970–2001," *Tijdschrift voor economische en sociale geografie*, 98:3, pp. 336–348.
- Rosin, G.D., & Radinsky, K. (2022). "Temporal attention for language models," *arXiv*, 3 May 2022; <https://doi.org/10.48550/arXiv.2202.02093>; accessed on 19 Nov. 2023.
- Puga, D. (2010). "The magnitude and causes of agglomeration economies," *Journal of Regional Science*, 50:1, pp. 203–219.

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