Proposal and PowerPoint Content

Predicting and Estimating Thailand’s Future Export Value to Other Nations

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1. Introduction/Motivation

1.1 Background of the problem:

Understanding the trajectory of a country's exports requires a careful examination of historical data, as it provides valuable insights into the dynamics of its economy. Thailand, over the past decade, has consistently demonstrated robust growth in its exports, driven by a diverse range of sectors, including manufacturing, agriculture, and tourism-related services. This article delves into the analysis and forecast of Thailand's export rankings and values, focusing on the pivotal period from 2013 to 2024.

Thailand's exports are pivotal not only for the country's economic growth but also as key indicators for predicting its future economic direction. The nation's export portfolio encompasses a wide array of products, including electronics, automobiles, rice, and tourism services, showcasing its versatility and competitiveness in the global market.

In recent years, Thailand has actively engaged in various international trade agreements and partnerships, signaling a commitment to expand its global presence. In this analysis, we aim to provide insights into the potential changes in Thailand's exports in the years ahead, utilizing data from 2024 as a foundation for our predictions. Such information is invaluable for businesses and investors seeking to navigate the evolving landscape of Thailand's trade, enabling them to grasp emerging opportunities and mitigate associated risks. Join us on this journey as we explore and gain deeper insights into the future of Thailand's exports.

1.2 What are the challenges:

Analyzing and forecasting Thailand's export ranking and value over a decade poses significant challenges:

1.Data Accuracy & Availability: Ensuring precise historical and future trade data is vital. Incomplete or inaccurate data can lead to flawed predictions, often from unreliable sources.

2. Economic Volatility: Global economic instability, driven by external shocks like financial crises and pandemics, can greatly affect exports. Accurately predicting these factors is a challenge.

3. Changing Market Dynamics: Rapid shifts in consumer preferences, technology, and regulations can alter export markets quickly, necessitating adaptive analysis.

4. Trade Policies & Agreements: Evolving trade policies and international agreements directly impact exports, demanding a deep understanding of the international trade landscape.

5. Sectoral Variations: Different export sectors have unique dynamics, requiring nuanced analysis for each.

6. Macroeconomic Factors: Exchange rates, inflation, and interest rates influence exports, necessitating precise forecasting.

7. Technological Advancements: Rapid technology shifts disrupt industries and create new opportunities, a challenging aspect to predict.

8. Competitive Landscape: Thailand competes globally, making it crucial to assess and forecast its export competitiveness.

9. Environmental & Sustainability: Changing sustainability concerns alter demand and production methods for products.

To address these, a comprehensive, interdisciplinary approach involving experts in economics, trade, data analysis, and industry knowledge is vital. Staying updated with current data, market trends, and geopolitical events is critical for accurate forecasts and valuable insights for stakeholders.

1.3 Stake Holders:

Government:	The Thai government is a key stakeholder with a vested interest in robust export forecasts for economic growth and international trade.
Businesses and Industries:	Major Thai industries reliant on exports are crucial stakeholders, as export forecasts directly impact profits and production.
Foreign Investors:	Foreign investors in Thai businesses are interested stakeholders, as export forecasts influence their investment decisions
Trade Associations and Organizations:	Groups focused on trade fairness and international trade, like trade associations, are vital stakeholders influencing trade policies.
General Public:	Thai citizens are stakeholders, as export forecasts can affect commodity prices and overall well-being
Media and Social Organizations:	Media and social organizations disseminate information and track export forecasts, potentially influencing public perception and policies.

2. Literature Review

This paper focuses on polynomial regression to model curvilinear relationships between two variables, specifically strain and drilling depth. The model parameters were estimated through least squares. Evaluation was done using common regression accuracy indicators, and MATLAB was used for the analysis.

- Modelling using Polynomial Regressionhttps://doi.org/10.1016/j.proeng.2012.09.545Redirecting

This abstract describes a three-step linear regression method for pricing the term structure of interest rates using a large number of pricing factors. The approach is computationally efficient and incorporates specification tests, suggesting the use of five principal components of yields as factors. The proposed model performs better than a four-factor model in out-of-sample exercises while generating similar in-sample term premium dynamics. Additionally, it can account for unspanned factors and estimate term structure models even without access to a zero-coupon yield curve.

- Pricing the term structure with linear regressionshttps://doi.org/10.1016/j.jfineco.2013.04.009Redirecting

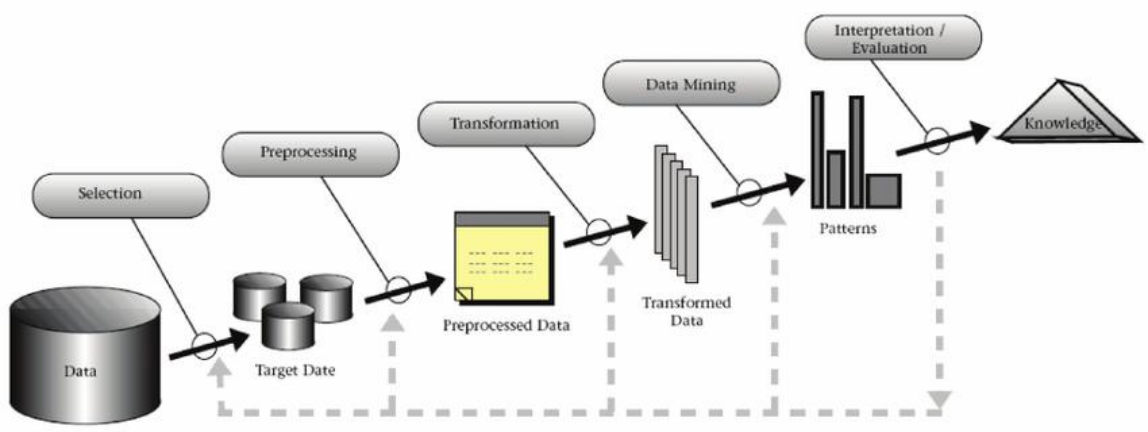
Clients need to be informed in advance of their likely future financial commitments and cost implications as the design evolves. This requires the estimation of building cost based on historic cost data that is updated by a forecasted Tender Price Index (TPI), with the reliability of the estimates depending significantly on accurate projections being obtained of the TPI for the forthcoming quarters. In practice, the prediction of construction tender price index movement entails a judgmental projection of future market conditions, including inflation. Statistical techniques such as Regression Analysis (RA) and Time Series (TS) modelling provide a powerful means of improving predictive accuracy when used individually. An integrated RA-TS model is developed and its predictive power compared with the individual RA or TS models. The accuracy of the RA-TS model is shown to outperform the individual RA and TS models in both one and two-period forecasts, with the integrated RA-TS model accurately predicting (95% confidence level) one-quarter forecasts for all the 34 holdout periods involved, with only one period not meeting the confidence limit for two-quarter forecasts.

- S. Thomas Ng,Sai On Cheung,Martin Skitmore &Toby C.Y. Wong (13 May 2010)An integrated regression analysis and time series model for construction tender price index forecastinghttps://doi.org/10.1080/0144619042000202799

3.Methodology

3.1 KDD/CRISP/iterative KDD

Data Selection: The first step is to select the dataset that want to analyze, explore and data understanding.
Data Preprocessing: Clean data to ensure usability.
Data Transformation: Convert the selected data to the appropriate format. For use in algorithmic analysis.
Data Mining: Regression for predictive data mining.
Interpretation / Evaluation: Analysis, interpretation and evaluation of the results obtained by dash board.



3.2 Models

- **Regression:**

Regression is a machine learning technique for predicting continuous values by using data to create mathematical models that relate independent variables to a dependent variable. It comes in various types based on task and variable relationships.

- **Feature:**

Country	HS 2dg	Description of HS 2dg	HS 4dg	Description of HS 2dg	Business Size	Value(bath)	Value(Dolor)	Month	Year

- **Row :**

The data approximal 500K record per years

3.3 Data source

https://data.go.th/dataset/export2556-2566

4. Project Milestone
   - Gantt chart