

Title: EconoFormer: A Novel Macroeconomic Policy Analysis and Implementation Planner Using Generative Transformer Model

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Abstract: Macroeconomic policy analysis and implementation planning are critical for economic growth, increasing employment rates, and ensuring price stability. It has become challenging to keep pace with today's fast-evolving, technology-driven economy, as policy analysis is a time-consuming process. This paper proposes a Generative Transformer (GT)-based macroeconomic policy analysis and implementation planner model, EconoFormer, designed with 1 billion parameters and trained on 5358 pages of documents related to macroeconomic policies. It achieved a perplexity score of 12.3, which indicates high prediction confidence. The innovative prompt filtering mechanism incorporated with it blocks irrelevant prompts with 98.22% accuracy. The EconoFormer model is scalable and maintains a linear relationship with the processing time and the number of policy analyses while maintaining a stable accuracy, precision, recall, and F1-score. Moreover, the performance remains stable for wide ranges of macroeconomic policies from different sectors. Most importantly, the policy impact rating similarity test shows that it is as good as macroeconomics policy experts in policy analysis. The EconoFormer has the capability to process real-time data in prompts, establish non-linear relations among 44 different economic indicators, and develop effective and plans for policy implementation. The unique concept, robust capability, and outstanding performance make the EconoFormer a potential framework for rapid macroeconomic policy analysis and implementation plan development.

Keywords: Macroeconomics , Economics , Artificial intelligence , Analytical models , Data models

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