

My bachelor thesis proposal

IRAQ, OIL & THE BUDGET

Iraq Economic Observatory

I want to understand the economy
and build a tool that helps me explore it.

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ASE · Economic Informatics in English



Why this matters to me

**I grew up in Iraq.
I want to understand
what the numbers
can actually tell me.**

Programming lets me build the tool.
Statistics helps me question the results.

A project I want to keep developing



What happens when oil income changes?

I use Python to connect the data, test the relationships and calculate what different assumptions would mean.



How exposed is Iraq's budget,
and what does that mean for its economic outlook?

My Python workflow checks the inputs, runs the analysis and exports the results so I can trace each conclusion.

I have annual history and a monthly fiscal core

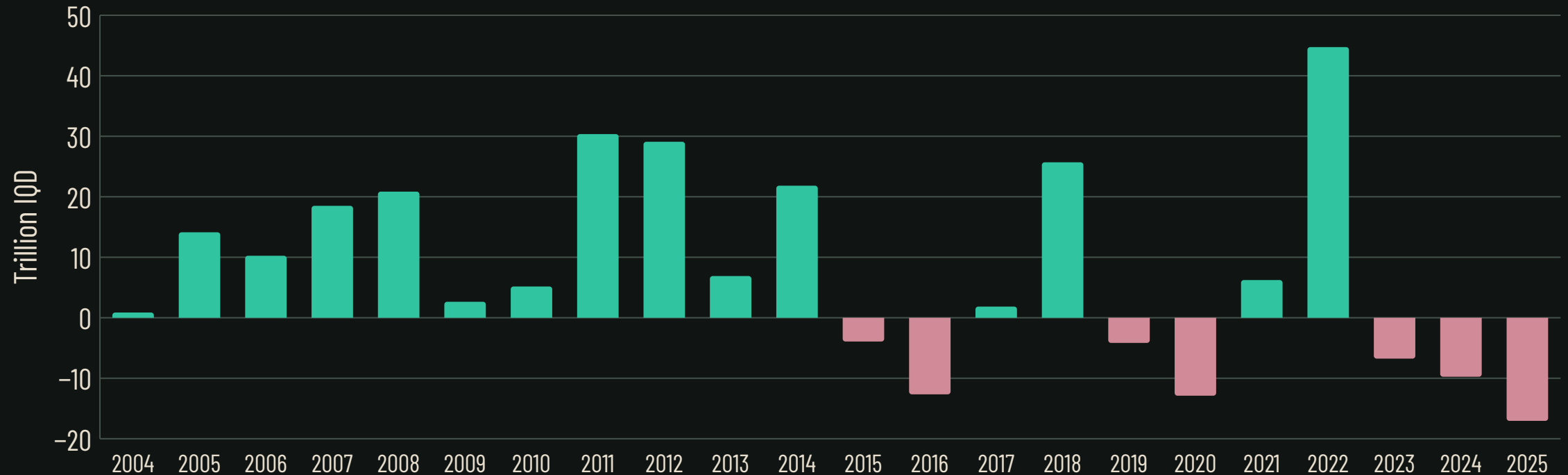
What I can study	Verified window	Source
Annual development context	2003–2025	World Bank WDI
Monthly revenue, spending and balance	Jan. 2016–June 2026	CBI archived tables
Monthly oil and mineral revenue	Jan. 2016–Dec. 2025	CBI archived tables
Separate fiscal outlook	2026–2031, annual projections	IMF April 2026 WEO

126 fiscal months

120 oil-category months

The study still begins in 2003. I have also extracted older months from 2008, with coverage and revision checks still needed.

The budget moved from surplus to deficit



2022

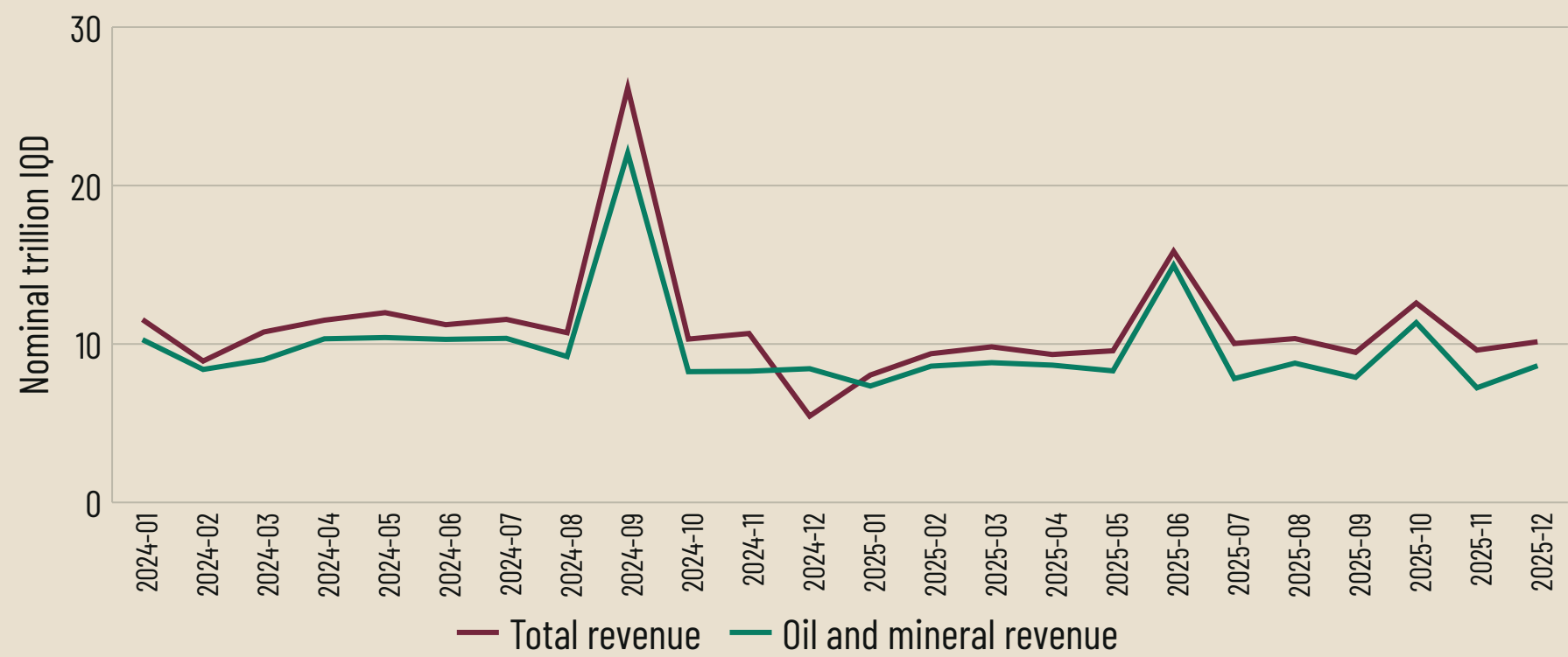
+44.74

2025

-17.04

CBI recorded budget execution, 2004-2025. Balance = revenue less expenditure. Figures are preliminary and revisable.

I can track oil-related revenue each month



120

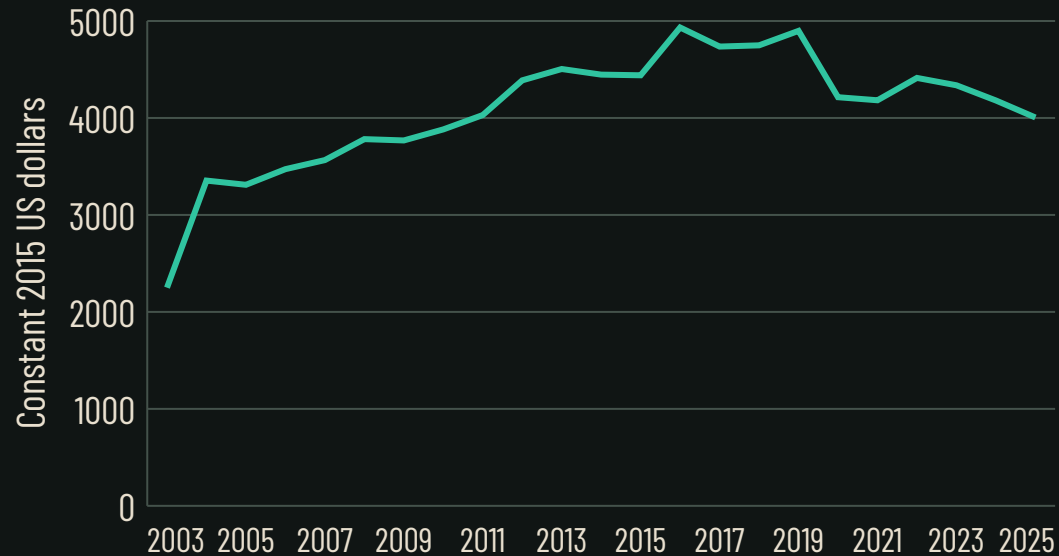
oil-category
months available

2025: 87.3% of reported revenue came from oil and mineral resources

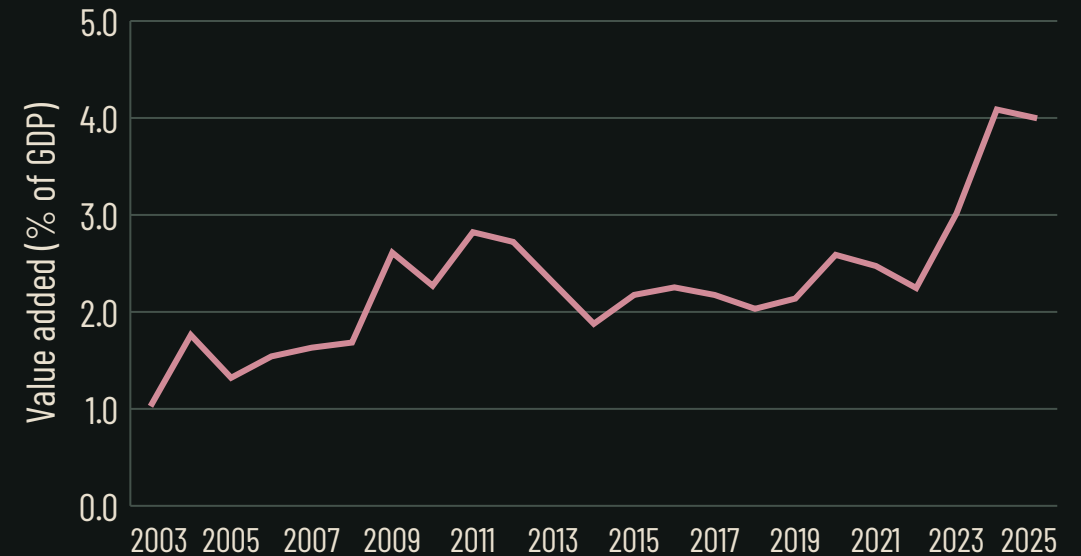
Chart: monthly increments, 2024–2025. Published accounting adjustments can affect a month. This does not identify a causal effect.

I also want to look beyond the budget

Real GDP per person



Manufacturing share



Why has Iraq followed a different development path from the UAE, Saudi Arabia and Bahrain?
Where did public spending go, and how much supported investment?

I want to compare the evidence and spending reports. These Iraqi trends alone cannot explain the differences.

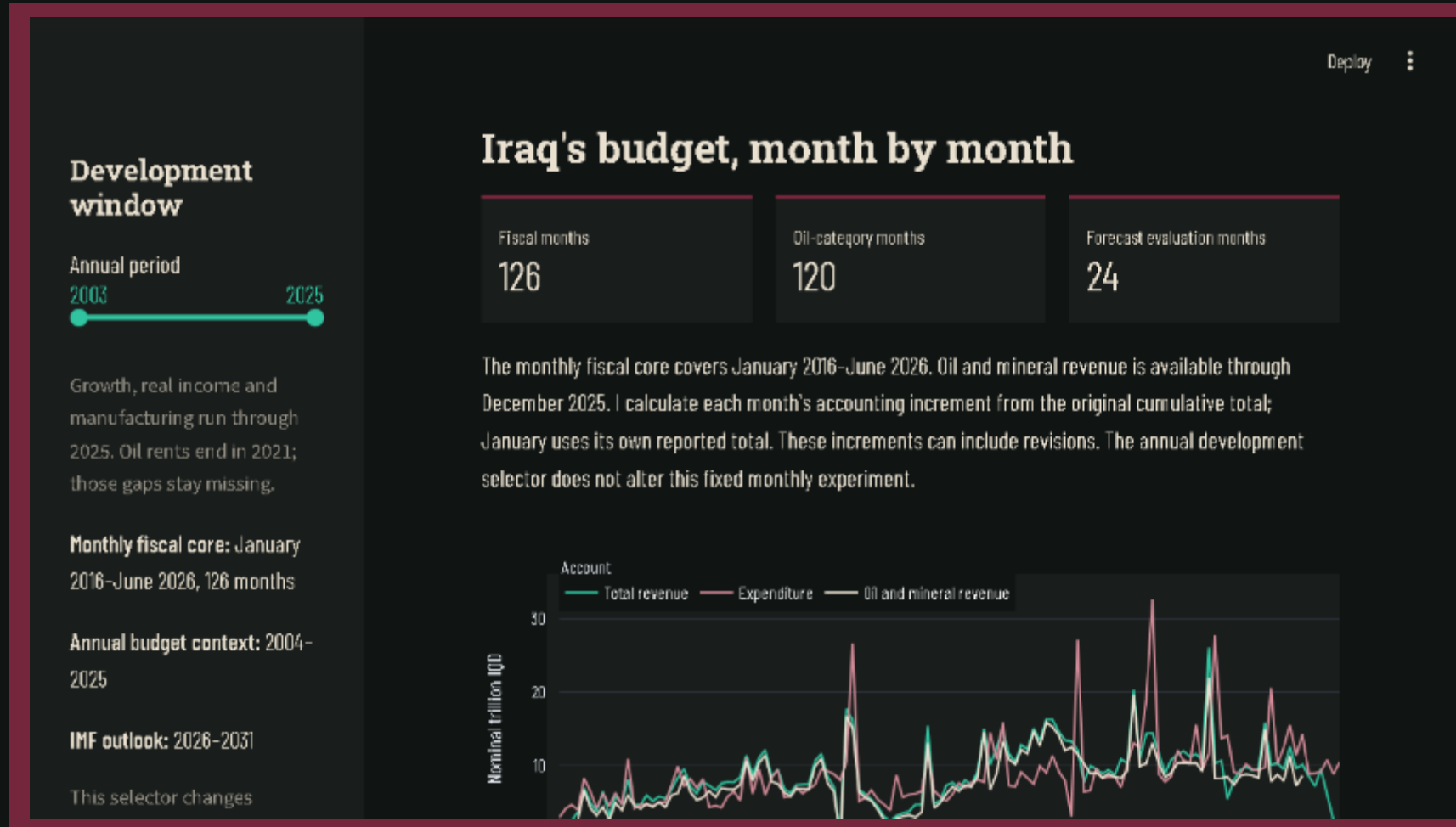
My Python application turns inputs into results

I change the price or spending assumptions, then compare the budget paths and export the numbers.



My working fiscal module. Actual prototype screenshot, October 2026. Python calculates the scenario behind this view.

My monthly fiscal view is already working



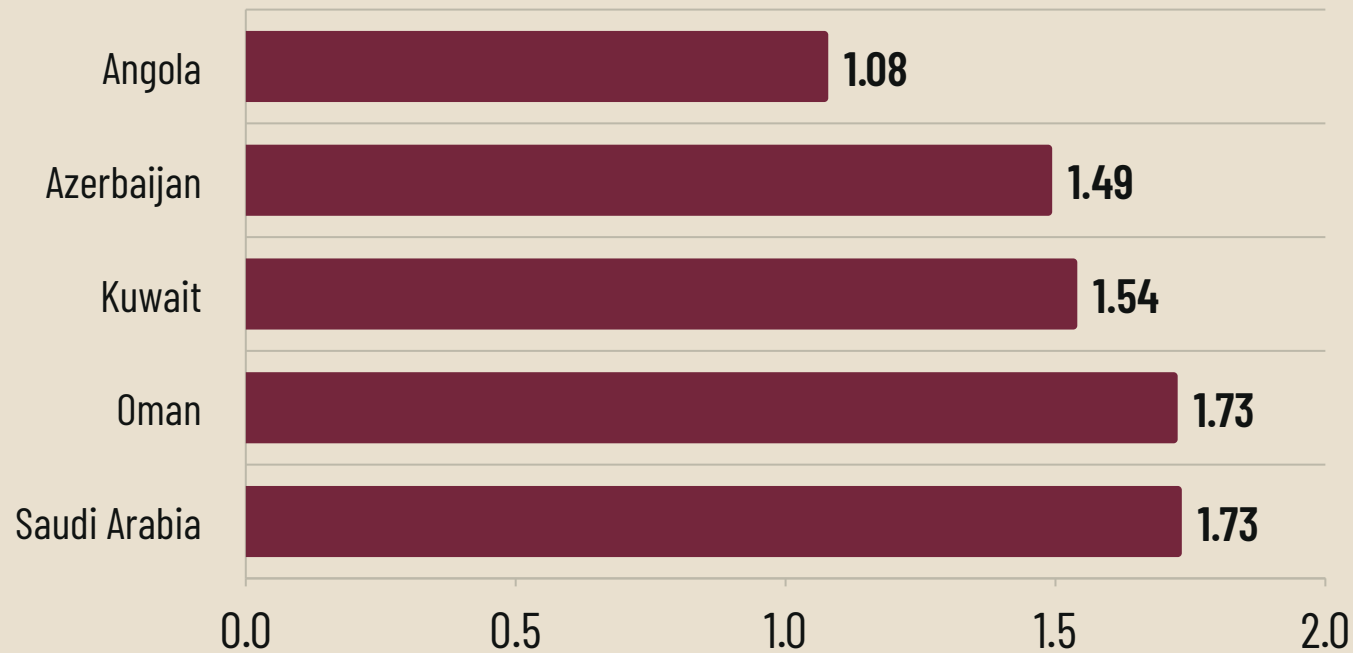
I can inspect each month

I keep the original totals and show how I derive each monthly increment.

I can test the forecasts

I compare models, inspect their uncertainty and export the results.

I can explain how the comparisons work



2003–2007 baseline, equal weights, 12 selected countries.
Lower distance means greater measured similarity. This is descriptive.

What my Python program compares

Oil rents
Real income per person
Manufacturing share

I can change the weights
and inspect each contribution.

I would ask Professor Uscatu to help me
improve the algorithm, and Professor
Davidescu to help me interpret the data.

The software is part of the research

I import the source files, check their units and missing values, and store the observations. Python then runs the comparisons, forecast tests and scenarios. The interface lets me change inputs, inspect the results and export the evidence without repeating the data preparation.



33 passing tests

I check data integrity, timing and accounting identities.

Python, pandas, statsmodels, SQLite, Plotly and Streamlit. I still need to integrate the fiscal tables into the relational store.

Monthly forecasts I have tested

Method	MAE, trillion IQD
AR(1)	2.815
ARIMA(1,1,1)	2.956
Last month	3.155
SARIMA(1,0,0)(0,1,1)[12]	3.528
Same month last year	3.669

24 test months

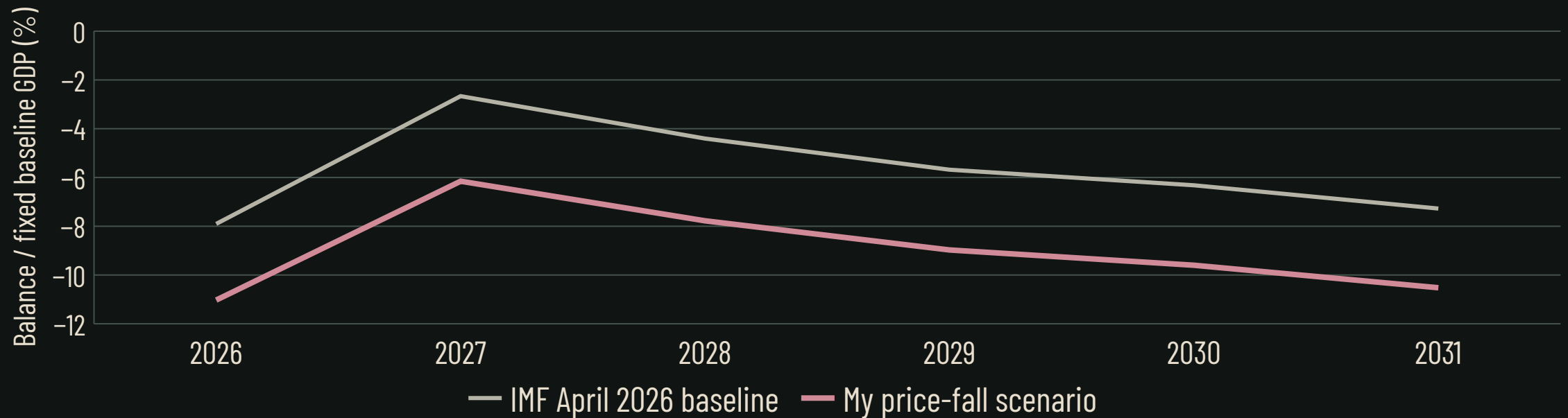
July 2024–June 2026
Monthly revenue in IQD
126 historical months

AR(1) has the lowest MAE. ARIMA has the lowest RMSE.
I still need to review the diagnostics before choosing a model.

I can reuse the monthly analysis for other countries after checking comparable variables, units and source coverage.

What if oil prices fall by 10%?

I can change an assumption and recalculate every year at once. This helps me compare possible pressures quickly and save the exact inputs behind each result.



2026: -7.90% to -11.03%

I assume 90% of revenue responds to the price shock. Spending, volumes, other revenue, GDP and FX stay fixed. This scenario has no probability.

What I have ready, and what comes next

WORKING NOW

Annual history and monthly fiscal pipeline

Country ranking and contribution checks

Monthly forecast tests and fiscal scenarios

Source checks, exports and 33 tests

I STILL NEED TO COMPLETE

Reviewed diagnostics and sensitivity

Fiscal database and experiment records

Usability checks and clearer reports

The written thesis and my final defence

I would refine the scope and next steps with your advice.

12-16 active weeks for the core

Defence: July 2027

The guidance I would like from you

Professor Uscatu

Would you consider coordinating my bachelor thesis?

I would like your help with the design and algorithms, making the application run smoothly, and deciding what to build and test next.

Professor Davidescu

Would you be willing to advise me on the statistical methodology?

I want to understand what I am doing with the data. I would value your help choosing the methods, checking their assumptions and interpreting the results.

I would agree the scope and consultation arrangements with you. Any formal additional role requires ASE confirmation.

Could we develop this into my bachelor thesis?

I would like to agree the question,
the software contribution,
and the methods I should build on.

Proposed academic title

Iraq's Oil Dependence and Economic Outlook: A Python Application for
Monthly Fiscal Analysis and Scenario Testing



Sources I used for this proposal

World Bank WDI: annual development context

Central Bank of Iraq: archived monthly tables

Central Bank of Iraq: current monthly workbook

World Bank: historical commodity prices

IMF WEO: April 2026 data and definitions

Iraq photographs

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The limits I need to keep visible

Data or method	How I handle it
Original budget rows	I derive increments from cumulative accounts.
Older archived months	I review coverage and revisions before expanding the core.
126 monthly core records	I test baselines and inspect seasonality and breaks.
Annual GDP and oil rents	I keep their frequency and leave missing values unfilled.
Forecasts and scenarios	I separate fitted intervals from assumed shocks.

I keep the October 2019 oil-category adjustment visible.

I want to understand where my results are uncertain.

Thank you for considering my proposal.

I would be grateful for your kind consideration and your feedback on the topic, the research approach and what I should improve next.

I would like to develop this thesis with your guidance.
I am open to refining the question, methods and scope together.

Could we discuss whether this is a suitable direction?