In chapters 4 and 5, we explored Saudi Arabia’s fiscal predicament, past, present, and future. This analysis has revealed that the government will likely face huge amounts of debt in 2030 and 2050, based on expected revenue and expenditure.

In this penultimate chapter, I will explore the role of capital in the Saudi government economy by extending the application of the genuine savings model (or genuine savings theory) to the Saudi economy.

I will start by defining the particular anatomy of the Saudi economy in a way that helps us apply the model adequately; although similar to other developing countries, the Saudi system has some special features. As we have discussed, revenue is mainly earned from extracting oil and gas resources.

Then I will develop what I call a “Saudi Genuine Savings” criterion to predict the future sustainability of government expenditure. I will empirically apply Saudi genuine savings to Saudi government data for the period starting 1990 through 2010 to test the government’s ability to sustain its supply of public goods and services in the future.

**Anatomy of an Oil-Dependent Economy**

Two all-important facets of government economy are government spending (expenditures) to supply public goods and services and government revenues to finance such government spending.
The following equations explain algebraically the main variables in these two functions:

**Government Total Expenditures**

\[ \text{GTE}_t = \text{GGP}_t = \text{GC}_t + \text{GI}_t \]  

\( \text{GTE}_t \) = Government Total Expenditures, at \( t \)  
\( \text{GGP}_t \) = Government Gross Product, at \( t \)  
\( \text{GC}_t \) = Government Current Expenditures, at \( t \)  
\( \text{GI}_t \) = Government Capital Expenditures, at \( t \)

**Government Gross Saving**

\[ \text{GS}_t = \text{GGP}_t – \text{GC}_t \]  

Note that \( \text{GTE}_t = \text{GGP}_t \)

**Saudi Genuine Savings**

\[ \text{GNS}_t = \text{GS}_t – \text{EK}_t \]  

\( \text{K}_t \), Government-Fixed (man-made) Capital, at \( t \)  
\( \beta \); Depreciation Ratio,  
\( \beta \text{K}_t \), Depreciation of Government Fixed Capital

**Gross Annual Revenue from Oil and Gas Extraction**

\[ \text{GRZ}_t = \text{XZ}_t \times \text{P}_t \]  

\( \text{GRZ}_t \) = Gross Annual Revenue from Oil and Gas Extraction, at \( t \)  
\( \text{XZ}_t \), Annual extraction of Oil and Gas, at \( t \)  
\( \text{P}_t \) = Oil and Gas Equivalent, Price per Barrel, at \( t \)

**Net Annual Revenue from Oil and Gas, at \( t \)**

\[ \text{NZR}_t = \text{GRZ}_t – \text{EZ}_t \]  

\( \text{NZR}_t \) = Net Annual, Oil and Gas Revenue, at \( t \)  
\( \text{EZ}_t \) = Total Annual Cost of Extraction of Oil and Gas, at \( t \)

**Government Annual Revenue of Oil and Gas**

\[ \text{GRZ}_t = \text{NRZ}_t – \text{IZ}_t \]  

\( \text{GRZ}_t \), Government Annual Revenue of Oil and Gas, at \( t \)  
\( \text{IZ}_t \), Government Annual Investments for Exploration, Discovery of New Oil and gas fields, and greater recovery from Existing Wells