

CALCULATING OIL REVENUE

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Background

Every year, the Mexican federal government must guarantee the continuity of their development and investment policies. To this end, through the Ministry of Finance and Public Credit (SHCP) it presents a Federal Revenue Law initiative, towards the following fiscal year.

The SHCP endorses the initiative through the projections of the budget revenue of the public sector; one of the most important items contained in the initiative depends mainly on the revenue of the hydrocarbons sector, specifically on Petróleos Mexicanos' own revenue, and transfers from the Mexican Oil Fund for Stabilization and Development.

Image. The SHCP substantiates its legal initiative on Petróleos Mexicanos' own revenue.



Source. GDJ in Pixabay, 2017.

Problem

In April of this year, the SHCP starts doing their analysis towards the projection of the revenue that derives from the transfers of the international oil sales throughout the following year. The relevant variables to obtain these calculations are the estimated price per barrel of the Mexican oil mix, and the type of exchange rate regarding the US dollar expected for the following year.

Development

In a hypothetical situation, an official in charge of the predictions of the relevant variables for the SHCP, towards the elaboration of the expenditure budget of the federation, is interested in deeper learning of the dynamics of the price of the Mexican mix and the type of exchange rate, in order to make a projection with an adequate theoretical basis.

In order to comply with the latter, the official decides to look into macroeconomic, fundamental variables, etc., that could affect the future performance of the Mexican oil mix and the type of exchange rate. He/She also plans to build two regression models, the first one to explain the price of the Mexican mix, and the second one the type of exchange rate.

With this information, the predictions of the price of the Mexican mix and of the type of exchange rate will be better justified, helping to predict the revenue for international oil sales.

Once all the econometric models have been presented, the official will verify their validity (taking into account that all the premises of a multiple regression model must be met). Should they not be valid, he/she must make the statistical adjustments to be able to use them.

When the models are valid, the official will make a simulation with the objective of projecting the price of the Mexican mix and the type of exchange rate. To do this, three scenarios will be used:

- 1) Base scenario
- 2) Optimist scenario
- 3) Pessimist scenario

Image. The official must project based on three scenarios.



Source. Leeloo Thefirst in Pexels, 2020.

With these scenarios, he/she will be able to project the oil revenues and thus have a more robust vision regarding scopes and limitations of oil revenue in the federation's expenditure budget.