

# Income taxes and value added tax forecasting analysis: Indonesian Case

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Deskripsi Lengkap: <https://lib.ui.ac.id/detail?id=20439861&lokasi=lokal>

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## Abstrak

### **ABSTRAK**

The thesis is a continuing forecast study of the two biggest taxes managed by Indonesian's Directorate General of Tax (Ditjen Pajak)--Income Taxes (PPh) and Value Added Tax (PPN). In addition, the respondent hopes to assist any revenue forecaster on forecast analysis by introducing new conventional and unconventional ways.

Currently, the Ministry of Finance (DepKeu), in this case represented by Ditjen Pajak and Agency for Fiscal Analysis (BAF) is responsible for revenue forecasting in Indonesia. The existing forecasting practices used by Ditjen Pajak and BAF based on a linear relationship between tax revenue and the macroeconomic aggregates such as GDP, inflation rate, exchange rate, and others. This approach seems to lack the fundamental economic relation that needs to show in any fiscal forecasting. The best alternative and common international practice is to relate tax revenue with its proxy base. For example, logically national consumption can act as a reliable PPN's base. As people increasingly consume goods and services, then PPN, which is a tax on final domestic consumption, will also increase. The economic theory behind the movement can also assist any forecaster. For example, an increase in say PPN rate will definitely affect the revenue. However, questions such as, the effectiveness of the rate change needs to be addressed. A good revenue forecaster should take into account any changes in economic behavior.

The thesis employs the most common method of revenue forecasting technique--Baseline forecasting, which is estimating of future revenues based on current laws and/or decrees. The two types of baseline forecasting are macro models (aggregate models) and micro models. For PPh, the report will only forecast macro models, because of lack of good and unbiased micro database (i.e., a clean and sufficient tax return database). On the other hand, PPN's forecast analysis will have both micro model and macro model, because of its sufficient micro and macro databases.

The macro methodologies for PPh are elasticity, time-series model, and monitoring, whereas the macro models for PPN are only time-series model and monitoring. A regression analysis between tax receipt and GDP is practiced to find the elasticity. The elasticity model will employ a stable relationship between the growth of tax receipts and their growth in the tax base. In addition, a dummy variable is used to discover whether a tax reform has any impact on revenue collection. By using

the estimated of tax elasticity and forecasted growth rate of the tax base, a forecast of the change in tax revenue can be obtained by simply multiplying the growth rate in the tax base by the elasticity. The elasticity approach is feasible if there have been no changes in the tax system (in rates, exemptions, and compliance) during a sufficiently long period to permit estimation of its value. An alternative way is to discard the concepts of tax elasticity and buoyancy and the economic basis of the revenue equations in general. The new method is a time series analysis that will use a regression analysis to exploit trends and correlations in the series of data for revenue and the proxy base, including the autocorrelation in the tax revenue series. It does not involve the assumption of an absence of tax changes, and it requires modest types and qualities of data. The monitoring system works as a measurement of administrative efficiency. <br><br>

Estimating the PPh's elasticity, the writer employs annual PPh's data from 1984 to 1997, by taking into account the 1994 as the tax reform year. The results on the pPh's elasticity, the multiple regression analysis shows a linear relationship between independent variables in the model I? multicollinearity problem. This is indicated by a relatively high R<sup>2</sup> in the regression equation with few significant t statistics. The presence of multicollinearity implies that there is no effect of 1994 tax reform in PPh collection. The new estimated PPh elasticity of tax revenue with its proxy base will not take into account the 1994 tax reform (i.e. GDP).

The time series model for both PPh and PPN will be a regression time series model, which will utilize a quarterly data from 1989 to 2000. The model provides a more sophisticated description of cause-and-effect relationship between the taxes and their proxy bases (i.e. GDP for PPh and national consumption for PPN) and the random nature of the process that generated the sample observations of the two taxes. The result for PPh shows a significant relationship between PPh and GDP. However, the PPN's result looks logically inconsistent with no significant relationship between PPN and national consumption.. PPN's regression time series model is not a fit model. <br><br>

The monitoring analysis for both PPh and PPN serves as a management tool that Ditjen Pajak can employ. It provides a fundamental inputs to both short- and Long-term Ditjen Pajak planning. <br><br>

PPN is the only tax that can accommodate micro model. The writer employs a micro data that is input-output table, a statistical framework of Indonesian economic activities in a given period. Later, the writer will estimate the PPNs base before estimating future revenue. <br><br>

the shortcomings are lack of in depth economic study, statistical problems (e.g. multicollinearity, simultaneous equation problem, low confidence interval, and limited number of observations), and lack of scenario adjustments (e.g. impact of

WTC incident on the tax revenue). <br><br>

The recommendations to counter these shortcomings are: <br><br>

1. Setup the economic framework that accompanies any revenue forecasting analysis. <br><br>
2. Expand the number observations to stabilize the elasticity's multiple regression model and regression time series model. <br><br>
3. Setup a clean and reliable tax revenue database, which includes discretionary changes effect for tax revenue. <br><br>
4. Setup a statistics of income database, a database of sample of tax return. This is important for microsimulation modeling. <br><br>
5. Includes performance targeting measurement, such as audit rate, percentage of collection, and others as a monitoring tool. <br><br>
6. Setup a separate database for personal and corporate income taxes. These two taxes have very different characters. <br><br>
7. Take into account any endogenous and exogenous adjustments.