

THE UNDERCURRENT INDONESIA'S CITY GAS SECTOR WITH THE MODERATING WORK FORCES

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ABSTRACT

The continues dynamics as the object of observation in studying the milestones that any company or industry should consistently achieve in long-term growth expected to bestable. The same applies to the natural gas distribution sector or known as city gas. The movement of data from year to year continues to depict an increasing trend with regard to the city gas sector in Indonesia. The objective of this particular study is to provide a clearer understanding of the city gas distribution sector in Indonesia and to provide a clearer picture of a number of latent variables that must be accommodated to optimize the distribution of natural gas to cities in Indonesia. The methodology used in this study is the Structured Equation Method (SEM). A more specific description, path analysis developed from multivariate regression is used to analyze the correlation between indicators and latent variables so as to determine the validity of the multiple regression model. still related to the research method, by sorting the data collection released from the Indonesian Central Statistics Agency by grouping data from indicators of city gas distribution companies during the period 2010-2020 divided into: income, number of workers, wages, volume of city gas distributed, and costs associated with operations. The results of this work are to provide input to the authorities and other stakeholders in order to optimize the growth of Indonesia's gas distribution sector. The value or originality of this study is to reveal the impact of latent variables that have the status of moderating variables. Study limitations - Due to the inaccessibility of non-disclosure primary data and limited data availability, it is assumed that the data obtained from the Indonesian Central Statistics Agency is valid to describe the explanatory variables of the city gas distribution sector in Indonesia.

Keywords: natural gas, city gas, quasi qualitative, structured equation method, moderating variable.

INTRODUCTION

The dynamics that continues to be the object of observation in analyzing the milestones that any company or industry should consistently achieve is long-term stable growth. The same applies to the natural gas distribution sector or known as city gas. The movement of data from year to year continues to depict an increasing trend with regard to the city gas sector in Indonesia as can be explained by adopting a number of key indicators such as the labor involved in the industry, the wages that must be spent on labor and finally the important volume of natural gas. distributed to city consumers.

The objective of this particular study is to provide a clearer understanding of the city gas distribution sector in Indonesia and to provide a clearer picture of a number of latent variables that must be accommodated to optimize the

distribution of natural gas to cities in Indonesia. The methodology used in this study is the Structured Equation Method (SEM). A more specificdescription, path analysis developed from multivariate regression is used to analyze the correlation between indicators and latent variables so as to determine the validity of the multiple regression model. still related to the research method, by sorting the data collection released from the Indonesian Central Statistics Agency by grouping data from indicators of city gas distribution companies during the period 2010-2020 divided into: income, number of workers, wages, volume of city gas distributed, and costs associated with operations.

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METHODOLOGY

The methodology selected for this particular study is comprised of two folds. The first one has to connect with the research methodology and the other should picture the structured model.

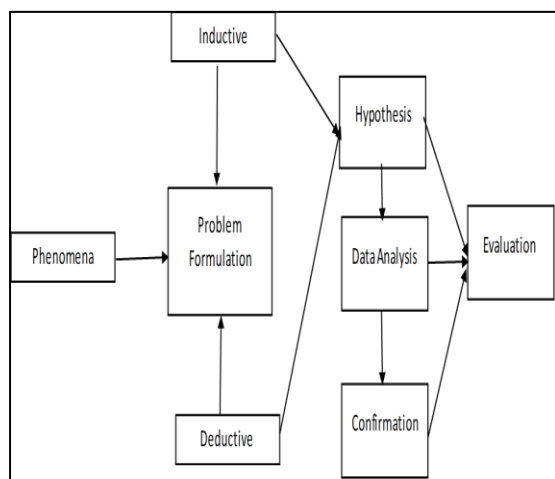


Figure 1.Flowchart of Quasi Qualitative Research

In general, across global boundaries, research methods commonly known as Quasi Qualitative are often referred to as naturalistic research methods because the research is carried out by observing the phenomenon occurred in the society and it coupled with the quantitative approach. Initially this method was widely used for research in the field of cultural anthropology, called also as a qualitative method because the data collected and the analysis is more qualitative in nature.

Furthermore, the foundation of this study is based on the occurrences observed in relation to the growth of the city gas sector in Indonesia. The methodology incorporates a number of sequential flows. The philosophy of the research construction based on the phenomenon appeared within the realm energy particularly the green energy, in particular the natural gas

produced as commercially trademarked as the city gas. From there onward, the problem formulation the established.

The next step is the use of Structural Equation Modeling (SEM) in this study which is a hybrid method that combines path analysis with factor analysis (Figure.2). This analysis includes confirmatory aspects of factor analysis, path analysis and regression. SEM is an appropriate analysis used for multivariate analysis in educational and other social research because in a number of cases, researchers are encouraged to use latent variables.

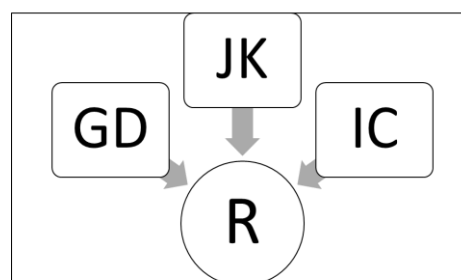


Figure 2.The Structured Equation Model

By far, SEM has evolved to the level it surpasses the user-friendly features of the longstanding multiple regression, as it is more accurate and faster because it builds interactive modeling, which can accommodate non-linear independent variables that have the potential to be correlated (correlated independents). Likewise, measurement in terms of errors, distortion in correlation (correlated error terms). A number of independent latent variables can also each be measured by an innumerable variation of indicators, along with one or two interdependent latent variables, each of which can be measured by several indicators.

RESULT AND DISCUSSION

To this, SEM is designed to test research with complex variables involving many variables simultaneously. SEM is used to be able to complete the analysis with one estimate where the others have been in parallel solved by a number of regression equations. SEM will effectively and efficiently perform factor analysis, regression and path analysis at once.

Hypothetical assumption to be examined and tested testing in this particular work used the Partial Least Square (PLS) method. PLS is an alternative method of analysis with Structural Equation Modeling (SEM) that is

mathematically based on the variance. The advantage of this heavily relied on algorithm method; that it does not require assumptions and can be estimated with a relatively small number of samples.

The tool used is the SmartPLS which is specifically designed to estimate structural equations on the basis of variance.

After inputting the data sets and running the program, the path can be seen in Figure 3.

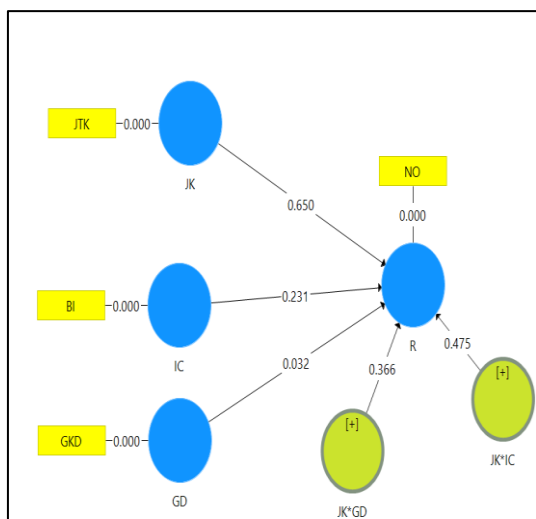


Figure 3. The Structural Model

After inputting the data sets and running the program, the path can be seen in Figure 3. The corporate internal cost (IC) is measured by an indicator set as BI, the volume of natural gas distributed into the pipeline systems to cater the end users (GD) is measured the GKD. Furthermore, the figure shows that the number of the work forces (JK) is measured by an indicator, namely JTK. However, JK also acts as the perceivable the moderating variable. Thus, within the latent variable R (functioning as the endogenous variable) not only holds one indicator namely NO but also the moderating functions underneath, noted as the JK*GD dan JK*IC.

First, the quality criterion should be examined. As stated, and populated in the table 1, R square describes a value that visualizes how significant the value of the independent variable (exogenous) is in having an impact on the dependent variable (endogenous). R squared is usually reported in numerical notation with a value range between 0 to 1 as an indication of the significance of the

combination of independent variables simultaneously having an impact on the value of the dependent variable.

This work reveals that the R Square is 23 % in values. Such percentage further explains that the independent variables of JK, IC and GD have moderate impact on the dependent value or the company revenue (R).

Table 1. R Square

Depth (ft)	R Square
R	0.232

Next, the path coefficient should be analyzed. By focusing on the moderating function should be interpretive based on the results (Figure 4).

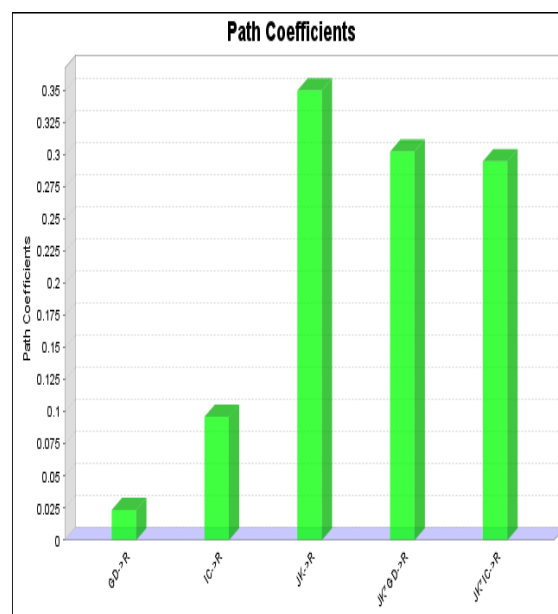


Figure 4. The Path Coefficients

Interestingly enough, the output send the reader a couple of important messages. First, the direct effect of the work forces times the distributed gas as the moderating variables on the Revenue (R) is 0.302, which means that if the moderating variables increases by one unit, Revenue should increase by 30.2%. Thus, such influence is positive and significant. Similarly, the work forces times the internal corporate cost as the moderating variables on the Revenue (R) is 0.295 which means that if the moderating variables increases by one unit, Revenue should increase by 29.5%. Therefore, the moderating

variables play important role on the revenue of the company distributing the city gas to reach out household across the regions.

Afterwards, the Heterotrait-Monotrait Ratio of Correlations (HTMT) should be taken into account (Figure 5).

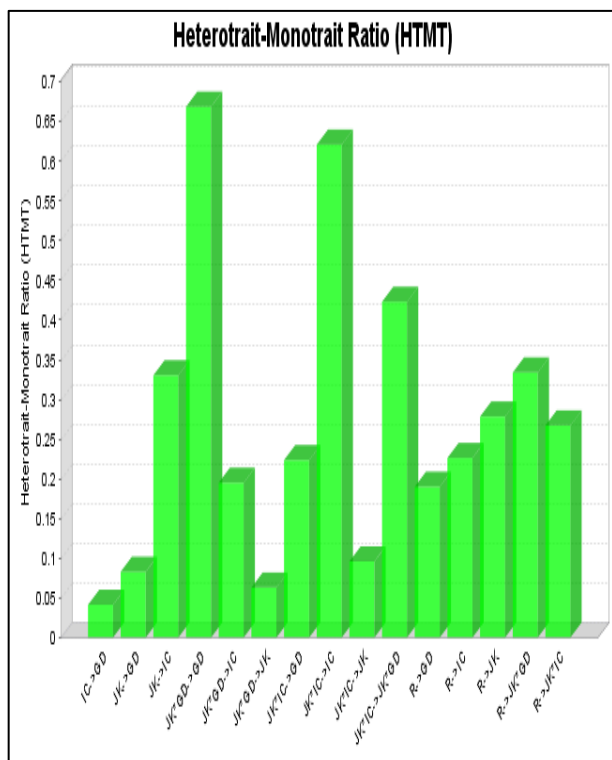


Figure 5. Heterotrait-Monotrait Ratio

In essence, the Heterotrait-Monotrait Ratio or HTMT is an outline step to take to gain of understanding the discriminant validity and is very useful - but it is best chosen when comparing traits that are not too far apart from each other, otherwise the results are trivial.

Visually the pattern of follow the pattern of those of normal distributions. The HTMT criterion being assessed in this particular work has the value below 0.90, that signifies discriminant validity has been established. Thus, the model constructed throughout this study can draw conclusions based on the indicators and the latent variables as well.

CONCLUSIONS

In this section, the study is concluded with a number fact resulting from the findings. The R Square is 23 % in values. Such percentage further explains that the independent variables of JK, IC, and GD have

moderate impact on the dependent value or the company revenue (R).

Next, as far as the direct effects, the work forces times the distributed gas as the moderating variables on the Revenue (R) is 0.302, which means that if the moderating variables increases by one unit, Revenue should increase by 30.2%. Thus, such influence is positive and significant. Similarly, the work forces times the internal corporate cost as the moderating variables on the Revenue (R) is 0.295 which means that if the moderating variables increases by one unit, Revenue should increase by 29.5%. las but least

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Following the conclusions, the suggestion to be made for future research. Due to the inaccessibility of non-disclosure primary data and limited data availability, it is assumed that the data obtained from the Indonesian Central Statistics Agency will grow in coming years. Therefore, population of data sets at current time might possibly be incorporated into the future study as more indicators will be involved.

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