

POLYNOMIAL APPROXIMATION AND LEAST
SQUARE ANALYSES OF FACTORS AFFECTING
ECONOMIC RATE IN THE PHILIPPINES

THESIS

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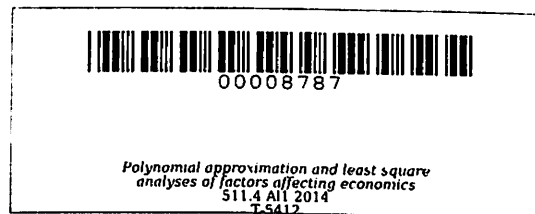
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**POLYNOMIAL APPROXIMATION AND LEAST SQUARE ANALYSES OF FACTORS
AFFECTING ECONOMIC RATE IN THE PHILIPPINES**

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ABSTRACT

ALCANCES, MARIA LYN S., Polynomial Approximation and Least Square Analyses of Factors Affecting Economic Rate in the Philippines. Undergraduate Thesis. Bachelor of Science in Applied Mathematics. Cavite State University, Indang, Cavite. Adviser: Paul Vincent E. Botin.

The study was conducted to: determine the trend of gross domestic product (GDP) and inflation rates, interpolate the polynomial function defined by GDP rate and inflation rates, trace the appropriate model for the regression analysis using the interpolating polynomial, evaluate the goodness of fit of the traced model, and extrapolate the GDP and inflation rates for the next three years.

The secondary data used in the study came from the Trading Economics that is accessible in the internet. The data was the gross domestic product rate and inflation rates. Different models were formulated using interpolation and least square to trace the appropriate model. The tracing model for the GDP and inflation rates was fitted for each interval. Based on the result of r-square with 0.921 for range 1-8, 0.817 for the range 9-14, 0.917 for the range 15-26, 0.923 for the range 27-38, and for the range 39-52 was 0.900. The r-square for the Inflation rate data resulted to 0.991 for the range of 1-6, 0.878 for the range 7-18, in the range 19-29 was 0.973, for range 30-40 was 0.835, and for range 41-52 was 0.877.

The predicted value of extrapolating polynomial for gross domestic product rate was increasing from 2014-2016 with the rate of 7.08 on 1st quarter, 7.38 for 2nd quarter, and 7.41 for the 3rd quarter and 7.79 for 4th quarter of 2014. For the year 2015, the results was 7.88 for the 1st quarter, for 2nd quarter was 8.12, for the 3rd quarter was 8.13 and for the 4th quarter was 8.11. On the year 2016 the results for 1st quarter was 8.14, for 2nd quarter was 8.32, for the 3rd quarter was

8.42 and for the 4th quarter was 8.54. While for inflation rate, from the year 2014 were 3.70, 4.10, 4.09 and 3.61 for 1st, 2nd, 3rd, and 4th quarter respectively. In the year 2015 were 4.1, 4.07, 3.89, and 3.52 for the 1st, 2nd, 3rd, and 4th quarter respectively. For the year 2016 the results were 2.9, 3.17, 2.87, 2.55, for the 1st, 2nd, 3rd, and 4th quarter respectively. So the rate was increasing from 2014-2015 and will decrease on 2016.

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INTRODUCTION

The economy of the Philippines is the 40th largest in the world, according to 2012 International Monetary Fund statistics and it is also one of the emerging markets in the world. The Philippines is considered as a newly industrialized country, and has been transitioning from one based on agriculture to one based more on services and manufacturing. According to the Central Intelligence Agency (CIA) Factbook, the estimated 2012 gross domestic product or GDP (purchasing power parity) of the Philippines was 424.355 billion.

Philippines is among leading economy in the South East Asian region. Its gross domestic product has been growing at a steady rate and stands testimony to economic progress made by this country in recent years. In financial year 2007, gross domestic product of the Philippines posted a real growth rate of 7.1percent. That was highest ever growth achieved by Philippines in last decade and a year. Moreover, the Philippines will be the 14th largest economy in the world; Goldman Sachs also included the Philippines in its list of the Next Eleven economies.