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| RESEARCH ARTICLE

An Empirical Analysis on the Determinants of the Philippine Economic Growth: 1987-2018

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| ABSTRACT
The impending unemployment situation in the Philippines is dreadful to the economic development. The study aims to formulate an econometric model for the determinants of economic development. This paper may be a new approach in understanding the inter-dependencies between the economic forces, but using a local region does prove that there are new insights regarding the economic factors in the Philippines. The results show that an increase/decrease in Labor Force Participation Rate (female) and General Government Final Consumption Expenditure increases/decreases in Unemployment Rate Among Female approximately. In contrast, an increase in the Inflation Rate decreased in Unemployment Rate Among females. The analysis uses E-views version 11 and 12. The results show a significant relationship between Unemployment Rate Among females and Labor Force Participation Rate (female), Inflation Rate, and General Government Final Consumption Expenditure using Multiple Linear Regression Analysis and Autocorrelation. Moreover, Johansen Cointegration Test proves a long-run relationship among the variables. The authors suggest that the analysis is imperative to help the economy maintain a high standard level and can be used by the government to implement policies that specifically highlight the role of women in economic growth.

| KEYWORDS

Unemployment Rate Among Female, Labor Force Participation Rate (female), Inflation Rate, General Government Final Consumption Expenditure, Economic Development, Johansen Cointegration Test

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1. Introduction

The Philippines was one of 193 UN member nations that accepted the 2030 Agenda for Sustainable Development in 2015, emphasizing achieving full and productive employment and decent work for all women and men (Cabegin & Gaddi, 2019).

In the Philippines, unemployment rates for both men and women decreased from 1 in 10 in 2000 to around 1 in 20 in 2015. Nonetheless, women's unemployment rates had fallen quicker than men's; they remained higher among women aged 15–24 than males. This sluggish improvement in women's labor participation may be apparent throughout the ASEAN area (Albert & Vizmanos, 2017). Unemployment in the Philippines is one of the most critical problems and critical indicators of the economy's weakness. It is a key indicator because it indicates the ability or inability of workers to gain work and contribute to the output of the economy. In a country that reached a 111,046,913 population, having 8.75 percent unemployed is a massive problem. According to the Labor Force Survey (2021), over 19 million aged 15 above are not part of the labor force. While there are 37.2 million women in the 15 years old and over age group, 17.455 million are included in the labor force, while 19.745 million declared themselves unemployed in January. In addition, the unemployment level in April 2020 was 7.2 million, leading to a 17.6% unemployment rate. It is a new peak for the jobless rate, indicating the consequences of the COVID-19 pandemic's economic closure on the Philippine labor market.

Notwithstanding the fact that employment in the Philippines has been emerging for the past decade, many Filipinos are still jobless. Women's employment inclusive growth rate was 88.4 at the beginning of the twentieth century, mainly in the manufacturing,

agricultural, industrial, and service sectors. However, as the year 2000 emerged, the country's total population reached 76,506,928, which proves that the employment growth is not enough to minimize the number of unemployed due to rapid growth in the population, the slow creation of jobs, and an increase in labor participation and now we are in the present situation where this matter must be resolved.

The country's unequal employment has led millions of Filipino people to seek jobs sooner. An increase in the output and lower Unemployment would temporarily either for the returns of firms or the purchasing power of workers while the inflation is too high. The economic situation of the Philippines proves that no government policy affects the economy. The procedures for government spending affect the GDP that will affect the output and employment. It is only limited to the effects of changes in the government liabilities that affect inflation. However, these policies depend on the rules upon implementation. For example, if the law held the inflation to zero, there is an increase in unanticipated and decrease in Unemployment.

The primary basis for writing this dissertation is to distinguish how the independent variable affects economic growth by optimizing the Unemployment Rate in the country, which will benefit future researchers, economists, academe students, and educational institutions. In this way, since Unemployment in the Philippines is a timely issue globally and domestically, this study will provide a basis for improving government policies, rules, and regulations that address the country's economic growth and unemployment rate.

Correspondingly, this study aims to evaluate the relationship among the determinants of economic development in the Philippines. Specifically, it intended to answer the following questions:

1. How does the current and past Unemployment affect the Labor Force Participation Rate (female), Inflation Rate, and General Government Final Consumption Expenditure?

2. Is there a significant relationship between Unemployment Rate Among females to Labor Force Participation Rate (female), Inflation Rate, and General Government Final Consumption Expenditure in a specific country?

    2.1 Is there a significant relationship between the Unemployment Rate Among females and the labor force participation rate (female)?
    2.2 Is there a significant relationship between the Unemployment Rate Among Females and the Inflation Rate?
    2.3 Is there a significant relationship between Unemployment Rate Among Female to General Government Final Consumption Expenditure?

3. What recommendations can be made to aid recovery in economic growth?

The authors intend to formulate an econometric model that can predict the unemployment rate through Multiple Linear Regression Analysis and Autocorrelation in Ordinary Least Squares (OLS) in Eviews 11 and 12 using R-square to determine its correlation with the other variables, addressing research question 2. Similarly, research question 1 was emphasized in the same chapter. On the other hand, question 5 will be evaluated in the latter part, specifically in the conclusions and recommendations. The following, which is considered to be the independent variables, are Labor Force Participation Rate among Female (X1), Inflation Rate (X2), and General Government Final Consumption Expenditure (X3) that can predict the dependent variable Unemployment Rate among Female (Y). This research would also be a stepping stone for those researchers that would follow this study's lead to maintain the level of competency in maintaining scientifically-based research that would provide additional inputs and facts to look for enhancement.

2. Literature Review

2.1 Determinants of Female Labor Force Participation in developing countries.

Besamusca et al. (2015) concentrated on how labor participation interconnect with individual age groups consisting (15-65+) relating to family characteristics, educational attainment, cultural perception, and economic conditions on gender. Based on the study's outcome, labor force participation increases as the age increases and decreases as the age comes near retirement. Also, the labor force participation rate is lower in countries with more eminent religions. They concluded that gender stereotypes serve as a barrier to labor force participation. Similarly, women can open their firms or be self-employed due to the flow of financial resources from oil rents. Esfahani and Bahramitash (2015) further explained that tradition and custom cause low female labor force participation, not Islam.

Economic factors such as interrelated decisions, environment, and mechanisms are considered the main drivers are influencing the Female Labor Force Participation Rate. Moreover, results show that the use of technology positively impacts the correlation of labor force participation on women's health, female labor supply, use of contraceptives, fertility, nutrition, and abortion. It aggravates that increase in female labor supply is associated with economic development. Lastly, significant factors such as

macroeconomic conditions and gender discrimination contributed to the rise in female labor supply in Latin America (Gasparini & Marchionni, 2015).

Kuptsch et al. (2015) explored the future of the labor market globally. Their paper focused on the impact of technology and how it changes the labor force in the future. The authors speculate that women will be the cornerstone of the future labor market. They claimed that the participation of women in the labor force has declined due to factors such as an increase in the level of education, voluntary withdrawal, and the job quality offered.

Booth (2016) provided a detailed understanding of Southeast Asian culture influencing Women's Labor Force Participation Rate. It has been proven that compared to the rest of the continent, Southeast Asian countries are much less patriarchal. Based on the study results, the different characteristics of Southeast Asian countries are influenced by the Female Labor Force Participation Rate in terms of fertility rates, religion, and economic development.

Bussemakers et al. (2017) analyzed the relationship between education and employment in many countries. They found that educational attainment makes a difference in labor force participation in countries with scarce service sector jobs.

Additionally, a study emphasized that the level of Female Participation differs in each developing country. An example would be that the increase in Latin America would slightly rise in the Middle East, while South Asia has a decreasing effect. The observed countries differ due to their economic structure, which provides equal opportunity for women. This study using the Feminization U Hypothesis proves a significant relationship between female labor participation and the development of the economy (Klasen, 2018). Similarly, Klasen et al. (2018) compared the factors affecting the Female Labor Force Participation Rate on a micro-level. Based on the data collected, the study's outcome showed different results per country. These increases in educational attainment and decrease in fertility will most likely increase Female Labor Force Participation. Klasen et al. (2019) found different shapes of the education-participation relationship from eight developing countries. The relationship is both positive and linear for Brazil and South Africa. This means that participation increases at a certain point in the educational threshold.

Pimkina and de la Flor (2020) gathered data from the World Values Survey. They found that differences in women's education, personal values, and country norms explain most of the regional variations in female labor force participation worldwide.

Another study by Cosar & Yavuz (2021) examined the labor market variables and Gross Domestic Product (GDP) in the Turkish economy. The paper used the Markov Switching (MS) model in quarterly data from 1989-to 2019. Okun's coefficients are genders, age groups, and education levels. Based on the results, men are more likely to lose their jobs during recessions in Turkey, with unemployment rates between 25-39 years old and university degrees less affected. Also, they found that gender dynamics of Labor Force Participation Rate is a fundamental determinant of the unemployment rate, which is located in the MS model. The interpretation of the results would mean that Labor Force Participation Rate has a positive significance to Gross Domestic Product to men compared for women with a negative effect. After the recession, women become secondary income earners.

2.2 Gender inequality and Unemployment among female workers

Ball (2015) showed consistency in Okun's Law forecast of GDP growth and unemployment, which is evident in 1989, which shows that they are negatively correlated. The results of the study show the responsiveness of unemployment to growth. Revisions proved that they are still negatively correlated with each other.

In a practical setting, gender inequality can be found in processes, practices, and organizational structures. It is usually apparent in making policies, decisions, hiring, training, pay, Human resources, and promotion of women (Stamarski & Son Hing, 2015). Furthermore, Bhattarai (2016) stated the Unemployment Rate and Inflation reduce the welfare of individuals and should be as low as in any economy. Using Granger Causality Test and Cointegration Test, the results showed a long-run relationship between the given variables. The rates of unemployment vary; inflation rates have stabilized at lower rates as a result of inflation targeting policies during the last two decades. Putnam and Azzarello (2015) stated that the statistical research documents change unemployment and inflation. There was a perceived trade-off between inflation and unemployment in the 1950s and 1960s, leading to stagflation in the 1970s.

In the European continent, a high share of women permanently withdraws from the labor force after birth and decide to be unemployed, thus raising the unemployment of females (Bicakova's, 2016). Similarly, Rao (2016) emphasized that unemployed women spend time job searching but will adjust to the schedule of their family life. Unemployed women often devote extensive time to housework and childcare as they contend with being unemployed.

Albert and Vizmanos' (2017) study showed that Unemployment Rates for both sexes in the Philippines declined from 1 out of 10 in 2000 to 1 out of 20 in 2015. The authors stated that equal unemployment rates by sex might lead one to think that women in the Philippines who join the labor force have similar economic opportunities as men. However, while unemployment is a summary of labor market conditions, assessing total unemployment rates results can be deceiving. In addition, Filipino women tend to be

in white-collar occupations centred on being professionals and clerks. Men outnumber women in work as laborers and dominate construction, transportation, agriculture, administrative and support services, and information and communication sectors. The study showed that household activities such as working in homes as caregivers of children, domestic helpers, and other home care comprise almost 90% females (David et al., 2017).

Diraditsile (2017) identified the effects of being unemployed and determining the sources of support available to unemployed young women. The study showed that unemployment among young women results in high levels of poverty, thus making young women engage in criminal activities. The study proved that majority has not benefited from the programs of the government.

Feng et al. (2017) pointed out a strong correlation between unemployment and GDP in urban China. In the calculation for labor participation rates, it was found that there is a decline throughout the whole period when unemployment is highly significant. Also, the changes' impacts fell mainly on the unskilled (people with less education, women, and younger individuals). Lastly, the estimation for the labor force and unemployment rate are provided for all urban residents, including those who are migrants without Hukou, which shows the same pattern over time.

The analysis found that in most cases, unemployment is not a choice of women but is an effect of the conditions prevalent in the labor market impairing the chances of female unemployment. Unemployment among women creates a social problem because it threatens the family's economic status and stability, which could result in the sense of social exclusion. The overall economic growth in the country affects the improvement of women in the labor market. An increase in the level of urbanization and education will cause women to have an interest in outdoor activities, which can result in greater participation of women in the labor market (Musial-Karg, 2017).

Tang & Bethencourt (2017) investigated the unemployment-output tradeoff in the Eurozone using the augmented framework of Okun's Law, which is called a nonlinear autoregressive distributed lag (NARDL) model. The shreds of evidence show labor markets respond to cyclical outputs in a short period while the adjustments in the new equilibrium become weak in the long run. Also, the cross-sectional analysis of long-run asymmetries indicates that government spending and trade balance are key factors that affect the asymmetric unemployment-output relationship. Recommendations of the result suggest that with the lack of monetary sovereignty, flexible application of fiscal reforms could help reduce asymmetric effects of the state members.

Glas, Spierings, and Scheepers (2018) found that the depth of religion in daily life increases women's support for gender equality. The study found that religious socialization is multifaceted and gendered, and those particular women are equipped to deviate from dominant patriarchal spiritual interpretation. The findings in Poland showed that female unemployment was decreasing but is still higher than that of male unemployment. The determinants of female unemployment are the geographical space and social factors that affected the level of female unemployment in Poland in the year 2016 (Lewandowska's, 2018).

ADB (2019) unemployment soars exceptionally high levels among young people in the Philippines. 50% of the estimated unemployed consist of youth. Female unemployment is much higher than for males. Overtime unemployment rate for (15- to 24-year-olds) steadily increased despite stable LFP rates for the two groups. The adult unemployment rate has remained steady.

Study shows that the decline in the probability of public sector employment for educated women is associated with either increased unemployment or decreased participation (Assad et al., 2020). Moreover, Hazel & Kleyman (2020) tried to explain the gender and sex inequalities in the U.S. Based on the result, women are more likely to be unemployed and more likely to have lower wages even though they participated in longer hours, and women are less likely to handle management positions.

With the inevitable occurrence of unemployment and inequality among women, Olga et al. (2020) suggest that a family policy created to promote and combine maternity and domestic work with paid employment will effectively increase the proportion of working mothers/women. The completed policy is vital to proportionally distribute the household responsibilities in the family and form an effective mechanism of state support for women through the development of the social services sector.

2.3 Economic Growth

Chapman (2015) examined how economic development in the MENA region affected Female Labor Force Participation. Her analysis found a U-shape hypothesis and found that low labor force participation of women in the region can be explained by the country's economic phase transitioning toward the bottom of the curve.

Onarheim et al. (2016) study indicated that healthier women and their children contribute to more productive and better-educated societies. The development and economic performance of nations depend upon how each country protects and promotes women's health. Likewise, Oztunc et al. (2015) examined the effect of women's education on long-term economic growth in the Asia Pacific Region. The study found that the fertility rate, female labor force participation rate, and female primary school enrollment are significant factors for annual per capita income growth.

The world faces significant financial and economic problems in the present-day situation, including unemployment and low economic growth. The Unemployment Rate and economic growth are the key indicators that are concurrently monitored by policymakers and the public as they create a clear manifestation regarding the economic development of a particular country. Furthermore, the relationship between unemployment and economic growth as a macroeconomic issue covers extensive theoretical and empirical research. An increase in the growth rate of Gross Domestic Product is perhaps an increase in employment and a decrease in unemployment (Sadiku et al., 2015).

According to Verme (2015), the region has low female labor market participation rates compared with its level of economic development. The relationship between female participation and GDP is a U-shape relation. The results of his study show that the (MENA) region has outperformed other world regions in terms of the main drivers of the hypothesis, but there is no clear evidence of a U-shape.

Ademola & Badiru (2016) determined the effects of unemployment and inflation on economic performance in Nigeria. The study results indicated that two cointegrating equations imply a long-run relationship between GDP, Unemployment, and inflation. The results also suggested that unemployment and inflation are positively related to economic growth.

Kim et al. (2016) show that improving gender equality can significantly contribute to economic growth by changing females' time allocation and promoting the accumulation of human capital. The results show that if gender inequality is wholly removed, aggregate income will be higher than the benchmark economy after one and two generations; respectively, the corresponding per capita income will be higher in the hypothetical gender-equality economy.

The labor search models with an exogenous labor force have found a negative relationship between unemployment and economic growth in the long run. Based on the results, the effects of unemployment may change the labor market institutions whether increase or decrease in the long-run economic growth. Also, changes in labor market institutions lead to a long-run relationship between economic growth and the unemployment rate (Lon Chen et al., 2016).

Lothian (2016) quoted, "A wedge in the dual mandate: Monetary policy and long-term unemployment" with the policy prescription "Optimal policy should trade-off a transitory period of the excessive inflation in order to bring the broader measure of underemployment to normal levels more quickly." The short-run trade-offs are much stronger than in the long-run tradeoffs in lieu of the search for unemployment and wage bargaining. Based on the study, their analysis is based on the consequences of growing unemployment in terms of fiscal policy. In addition, their analysis provides insight regarding the fiscal policy in terms of increase in debt with regards to initial response in the financial crisis. The analysis pointed out that there is an increase in government investment which is appropriate for fiscal policy (Schubert et al., 2018).

Soylu et al. (2018) on the unemployment and economic growth issue using Panel Unit Root, Pooled Panel OLS, and Panel Johansen Cointegration tests for Eastern European Countries for 1992-2014 showed that unemployment has a positive effect on economic growth. An increase in the GDP will decrease the unemployment rate due to Okun's coefficient for European Countries and the cointegration present between the macroeconomic variables. Moreover, Tesfaselassie & Wolters (2018) explained faster growth when there is lower unemployment while inflation is relatively high. The sign of the effect of development on unemployment depends on the level of steady-state inflation. There is an outset level of inflation (above) which faster growth leads to higher (lower) unemployment.

On the contrary, Apau et al. (2019) revealed a negative relationship both short run and long run between unemployment and economic growth. However, the Granger Causality Test also showed that unemployment and economic growth do not impact each other.

Tenzin (2019) study analyzed the relationship between Inflation and the Unemployment Rate. In the short run, inflation and unemployment rate have a negative association, and in the long run, Inflation and Unemployment Rate have a positive association. If inflation is not closely observed, inflation can decrease economic growth, causing unemployment to increase in the long run.

2.4 Synthesis of Literature Review

Based on innumerable related local and international literature studies on unemployment, the Philippines is critical in its correlation with economic growth. The effects of unemployment among women reveal that women's low participation in the formal labor markets of developing countries impedes economic growth and poverty reduction. In addition, the effects of unemployment may change the labor market institutions whether increase or decrease in the long-run economic growth. The advantages of women in the economy are significant. Women in the workplace have a greater chance for growth, stability, and innovation, especially in firms because they have a more substantial ratio of management and leadership.

It was pointed out that developed countries such as China elaborated that there is a strong correlation between economic development and unemployment. Moreover, a study based in Nigeria proved that there is a long-run relationship between inflation

rate and unemployment rate using Cointegration Test or Granger Causality Test. Lastly, the incorporation of technology as a means of advancement will be the cornerstone of modernization, which has a positive impact on economic development.

2.5 Hypothesis of the Study

Null Hypothesis

H_0 – There is no significant relationship between Unemployment Rate Among Female and Labor Force Participation Rate (female)

H_0 – There is no significant relationship between Unemployment Rate Among Female and Inflation Rate

H_0 – There is no significant relationship between Unemployment Rate Among Female and General Government Final Consumption Expenditure

2.6 Theoretical Framework

The authors used four economic theories to support their study. First, The New Classical Economics states that the price system in a free economy can be used as a guide for the supply and demand in all markets, including the labor market. Unemployment will only rise if there is a market imperfection or government intervention. However, Keynes argued that even if the market imperfection is not present, aggregate demand will still fall short of the aggregate production capacity of labor and capital. In this situation, unemployment becomes involuntary. Second, The Keynesian Macroeconomic Theory is an economic theory of total spending in the economy and its effect on output, employment, and inflation. Third, Income and Employment Theory is an economic analysis concerned about the relative levels of output, employment, and prices in an economy. Lastly, Neoclassical Growth Theory is an economic theory that states labor, capital, and technology will result in steady economic growth.

2.7 Conceptual Framework

This section is the conceptual framework for this paper. The authors used an IPO (Input-Process-Output) method on presenting the determinants of economic development in the Philippines. Primarily, the input consists of the dependent variable (Unemployment Rate Among Female) and the independent variables (Labor Force Participation Rate (female), Inflation Rate, and General Government Final Consumption Expenditure). Under the process framework, the authors will be using the Multiple Linear Regression Analysis and Autocorrelation (Durbin - Watson's test) as a means of the interpretation of data. This is to determine the relationships between the given variables. Moreover, the researchers will be using the Breusch-Godfrey Test and Durbin Watson Stat to test the serial correlation. The output will be the resulting analysis from the statistical data upon determining the relationship of the aforementioned variables. With this, the researchers can also extend the information gathered from the data, which then corresponds to the recommendations in order to achieve the objective of this study.

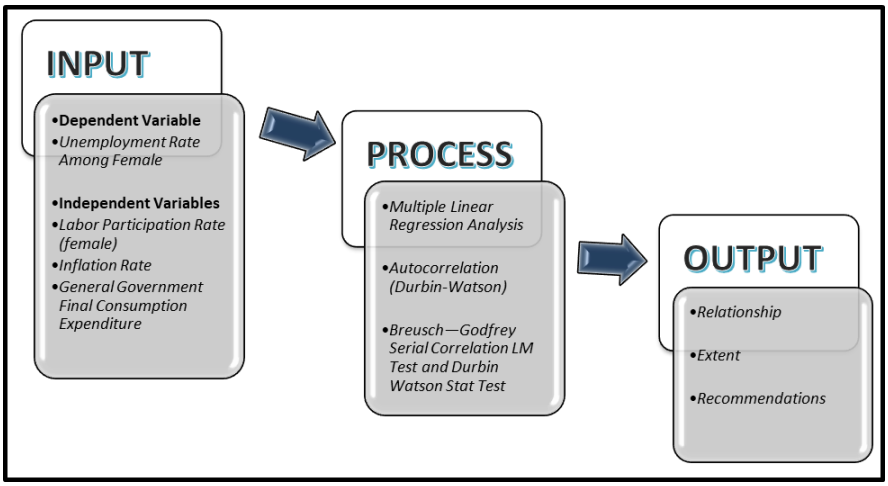

Figure 1. Conceptual Framework for the determinants of economic development in the Philippines

3. Research Design (Research Method and Technique)

This study used a descriptive-quanti method of research. It will utilize the data from the World Bank and Philippine Statistics Authority (PSA) to gather the needed data essential for the study. Quantitative methods will be used to observe the relationship between the variables with the principal objective analyzed and associated mathematically through the use of statistical analysis. The study manipulated the relationship between the dependent variable (Unemployment Rate Among Female) and independent

variables (Labor Force Participation Rate (female), Inflation Rate, and General Government Final Consumption Expenditure) in the Philippines.

Description of Variables:

3.1. Dependent Variable
Unemployment Rate Among Female – percentage of Female Labor Force.

3.1.1 Independent Variables
Labor Force Participation Rate (Female) – percentage of female population ages 15+
Inflation Rate – purchasing power of Philippine currency.

General Government Final Consumption Expenditure - production of non-market final goods and services excluding Gross Fixed Capital Formation and goods and services provided as social transfers.

3.2 Sources of Data
In order to reach through the hypothesis of the study, the researchers will collect all the necessary data for the study from secondary sources from the official government websites, including the World Bank for the Unemployment Rate Among Female while the Labor Force Participation Rate (female), Inflation Rate, and General Government Final Consumption Expenditure found in the National Accounts of the Philippines in the Philippine Statistics Authority website and World Bank. The researchers will gather all the data in the Philippines in the years 1987-2018 to compare the performance of the economy during the period when they have been present in the country.

3.3 Statistical Analysis of Data
The assumed empirical model of this empirical study would be:

$$U = b_0 + b_1(LFPR) + b_2(IR) + b_3(GFCE) + \mu$$

where,

U = Unemployment Rate Among Female
LFPR = Labor Force Participation Rate
IR = Inflation Rate
GFCE = Government Final Consumption Expenditure

VARIABLES	ASSUMPTIONS
Unemployment Rate Among Female (-)	As the Unemployment Rate Among Female increases, the output decreases, which is in contrast with Labor Participation Rate Among Female, Inflation Rate, and Government Final Consumption Expenditure.
Labor Participation Rate Among Female (+)	The higher the Labor Force Among Female explains the effect of increase in Unemployment. However, when the number of employed persons increase, there is an increase in the total labor force while the unemployed persons are unaffected. Hence, it would decrease.
Inflation Rate (-)	The higher the inflation, the economy will suffer. With lower inflation rate, unemployment decreases.
General Government Final Consumption Expenditure (+)	When the unemployment rate is low, it would cause the General Government Final Consumption Expenditure to increase. However, when the General Government Final Consumption Expenditure is low the effect would increase the unemployment rate.

4. Results and Discussion

The researchers acquired the following results in their study entitled "An Empirical Analysis on the Determinants of the Philippine Economic Growth: 1987-2018", with Unemployment Rate (Female) as the dependent variable while Labor Force Participation Rate (Female), Inflation Rate, and General Government Final Consumption Expenditure as the independent variables.

The econometric model with values is expressed below as:

$$U = -2.80726 + 3.411159\ (LFPR) + 3.89947\ (IR) - 2.473779\ (GFCE) + \mu$$

The econometric model shown above explains the relationship of variables visible in the study. The dependent variable Unemployment Rate (Female) represents b_0 or the slope-intercept is -2.80726. Next is the b_1 or slope of the intercept, which is the Labor Force Participation with a value of 3.411159. For b_2 which is the Inflation Rate has a value of 3.89947. Lastly, b_3 which is the General Government Final Consumption Expenditure has a value of - 2.473779.

Variables	T-statistic	Probability
C	-2.80726	0.009
Labor Force Participation Rate (Female)	3.411159	0.002
Inflation Rate	3.89947	0.0005
Government Final Consumption Expenditure	-2.473779	0.0197

Table 1. Significance of Variables

Table 1 shows the probability of the T-statistic Test in determining whether the dependent variables have a significant relationship with the given dependent variable. Based on the result of the test, all the variables such as Labor Force Participation Rate (Female), Inflation Rate, and General Government Final Consumption Expenditure are significantly related with Unemployment Rate (Female) given their results are less than the α of 0.05.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-47.47938	16.91307	-2.80726	0.009
LFPR	1.138553	0.333773	3.411159	0.002
IR	0.462952	0.118722	3.89947	0.0005
GFCE	-2.90E-12	1.17E-12	-2.473779	0.0197
R-squared	0.715509	**Mean dependent var**	6.981172	
Adjusted R-squared	0.685027	**S.D. dependent var**	3.655556	
S.E of regression	2.051586	**Akaike info criterion**	4.391572	
Sum squared resid	117.8522	**Schwarz criterion**	4.574789	
Log likelihood	-66.26516	**Hannan-Quinn criter.**	4.452304	
F-statistic	23.47375	**Durbin-Watson stat**	1.263187	
Prob(F-statistic)	0			

Table 2. Multiple Regression Analysis

Table 2 presents the Multiple Regression Analysis results. With Unemployment Rate Among females as the dependent variable, it is shown that the slope-intercept is -47.47938. Second, or the slope of Labor Participation Rate (female), means that the Unemployment Rate Among Females increases by 1.138553 for every additional value; thus, it only means that they have a negative relationship. Third, or the slope of the Inflation Rate means that Unemployment Rate Among females is decreasing by 0.462952 when there is a one-unit increase in the Inflation Rate. General Government Final Consumption Expenditure is increasing by -2.90E-12 when there is a one-unit increase in Unemployment Rate Among Females. Also, Adjusted R2 or adjusted coefficient of determination is 0.685027 or 68.5027% which means that the result of the goodness of fit is good. Lastly, F-statistic and the

probability, which is 0, means that there is a significant relationship among the dependent and independent variables since their result are less than the α of 0.05.

Null hypothesis: No serial correlation at up to 1 lag				
F-statistic	2.948126	**Prob. F (1,27)**	0.0974	
Obs*R-squared	3.150114	**Prob. Chi-Square (1)**	0.0759	
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	-4.719055	16.58306	-0.284571	0.7781
LPR	0.101585	0.328113	0.309605	0.7592
IR	-0.037815	0.116889	-0.323509	0.7488
GFCE	1.03E-03	1.14E-12	0.0903	0.9287
RESID(-1)	0.342908	0.199712	1.717011	0.0974
R-squared	0.098441	**Mean dependent var**	-2.86E-15	
Adjusted R-squared	-0.035123	**S.D. dependent var**	1.949791	
S.E of regression	1.983737	**Akaike info criterion**	4.350442	
Sum squared resid	106.2507	**Schwarz criterion**	4.579464	
Log likelihood	-64.60708	**Hannan-Quinn criter.**	4.2366357	
F-statistic	0.737031	**Durbi-Watson stat**	2.067274	
Prob(F-statistic)	0.574886			

Table 3. Breusch—Godfrey Serial Correlation LM Test and Durbin Watson Stat Test

Based on the result of the test, the p-value of nR^2 is 0.0759, which only means that it is more than the critical value α, which is equivalent to 0.05; hence this shows that the dependent and independent variables have a strong correlation. Also, the value of the du is 1.428, which is less than the result for the Durbin-Watson stat 2.067274, which means that the value is more than 0.05, therefore, do not reject H_0 .

Variable	**Coefficient Variance**	**Uncentered VIF**	**Centered VIF**
C	286.0519	2174.779	NA
LFPR	0.111405	1950.195	1.27872
IR	0.014095	50753051	1.631344
GFCE	1.38E-24	13.13655	1.762193

Table 4. Variance Inflation Factors

Table 4 presents the results of centered VIF or Variance Inflation Factors of the study among the independent variables. The Labor Participation Rate (female) is 1.278720, Inflation Rate is 1.631344, and General Government Final Consumption is 1.762193. All the results show that they are less than 10. Therefore, they are moderately correlated, which means that there is a correlation, but not enough to be worried about. In multiple regression analysis, having no multicollinearity among independent variables is critical.

Table: Unit Root Test						
Variables	**Level**		**1st Difference**		**2nd Difference**	
	C	**C&T**	**C**	**C&T**	**C**	**C&T**
U	0.9148	0.2743	0	0.0001	0	0
LFPR	0.0183	0.061	0	0.0002	0	0.0009
I	0.0849	0.0013	0	0	0	0
GGFCE	Near Singular Matrix	Near Singular Matrix	0.0002	0.9828	0.9361	0.0011

Table 5. Unit Root Test (Schwarz)

Based on the result of the unit root test using intercept, it shows that the values are less than 0.05. Therefore, all the variables are considered stationary. This only means that any shocks to the system in the short-run quickly adjusts to the long-run.

Heteroskedasticity Test: White Null hypothesis: Homoskedasticity			
F-statistic	1.640377	prob. F (9,22)	0.1648
Obs* R-squared	12.85052	Prob. Chi-Square (9)	0.1695
Scaled explained SS	5.082511	Prob. Chi-Square (9)	0.8271

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	-1844.996	1439.826	-1.281402	0.2134
LPR^2	-0.665246	0.534426	-1.244787	0.2263
LPR*IR	-0.463577	0.325425	-1.42453	0.1683
LPR*GFCE	-4.93E-12	3.27E-12	-1.50432	0.1467
LPR	70.57501	55.54447	1.270604	0.2171
IR^2	-0.035639	0.044041	-0.809224	0.4271
IR*GFCE	4.74E-14	1.08E-12	0.044073	0.9652
IR	22.20384	16.26422	1.365196	0.186
GFCE^2	-1.34E-24	6.41E-24	-0.209129	0.8363
GFCE	2.34E-10	1.69E-10	1.383587	0.1804
R-squared	0.401579	**Mean dependent var**	3.682881	
Adjusted R-squared	0.15677	**S.D dependent var**	3.803361	
S.E of regression	3.492534	**Akaike info criterion**	5.589439	
Sum squared resid	268.3515	**Schwarz criterion**	6.047481	
Log likelihood	-79.43102	**Hannan-Quinn criter.**	5.741267	
F-statistic	1.640377	**Durbin-Watson stat**	2.141621	
Prob(F-statistic)	0.164806			

Table 6. White Heteroskedasticity Test

Table 6 shows the result of the White Heteroskedasticity Test, whereas the obs* R-squared is 12.85052 and the p-value is 0.1695 and 0.8271, which shows that it is above 0.05 or 5%. Hence, there is no heteroskedasticity in the study. In order to prove the aforementioned statement, the p-value on the R-squared is greater than α, therefore accepting the H_0.

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None*	0.822638	93.19351	55.24578	0
At most 1*	0.591524	41.30664	35.0109	0.0094
At most 2*	0.32271	14044698	18.39771	0.1637
At most 3*	0.087812	2.577289	3.841465	0.0968
Trace test indicates 2 cointegrating eqn(s) at the 0.05 level				
***denotes rejection of the hypothesis at the 0.05 level**				
****MacKinnon-Haugh-Michelis(1999)p-values**				
Unrestricted Cointegration Rank Test (Maximum Eigenvalue)				

Table 7. Johansen Cointegration Test

Decision: Given the results generated, the null hypothesis of no cointegrating equation is rejected at a 5% level. Hence, it is concluded that a long-run relationship exists among the four variables.

Jarque-Bera Test			
Mean	3.91E-15	**Std. Dev**	2.422035
Median	0.348155	**Skewness**	-0.055387
Maximum	4.436716	**Kurtosis**	1.85537
Minimum	-4.009761	**Jarque-Bera**	1.763267
Probability	**0.414106**		

Table 7. Jarque-Bera Test

Null hypothesis: residuals are normally distributed

Alternative hypothesis: residuals are not normally distributed

Table 7 shows the result of the normality test/jarque-bera test. It is shown that the probability is 0.05 or 5%, and they are normally distributed. Therefore, accept the null hypothesis.

5. Conclusion and Recommendations

Taking everything into account, in order to prove the relationship of the variables, a series of diagnostic tests were run in Eviews Software in the year 1987-2018. Based on the findings, the dependent variable Unemployment Rate (Female) is strongly correlated to the independent variables: Labor Force Participation (Female), Inflation Rate, and Government Final Consumption Expenditure which the Multiple Linear Regression Analysis proved. Furthermore, the Johansen Cointegration Test showed that the null hypothesis of no cointegrating equation is rejected at a 5% level. In accordance with the model results, a decrease in Labor Force Participation Rate (female) will decrease Unemployment Rate Among Females. Therefore, the assumption made for this variable is correct. Likewise, an increase in the Inflation Rate will result in a decrease in Unemployment Rate Among females. Therefore, the assumption made for this variable is correct. On the other hand, an increase in the General Government Final Consumption Expenditure will increase Unemployment Rate Among Females. Therefore, the assumption made for this variable is incorrect. As

stated in the previous studies, there is a short and long-run relationship between GDP, inflation, and unemployment. Also, there is a strong correlation between unemployment and GDP.

Moreover, the data analysis showed the result that there is a strong positive correlation in the short run, proven by the autocorrelation scatter plot and unit root test. However, given that the study is not a comparative study thus, the graph for the long run is not included in this paper. Lastly, this study used the data specifically regarding the contribution of females in economic growth since most of the study focuses on general. Results of the study provide sufficient evidence-based research that would help our developing economy maintain a high level of standard and can be used by the government for implementing policies that would lead to economic recovery. Considering the results of their findings, the authors used Unemployment Rate Among Female instead of Gross Domestic Product since there is insufficient data in the Philippines regarding this study. In addition, the autocorrelation, heteroskedasticity, and Breusch-Godfrey Test and Serial Correlation LM Test, Unit Root Test, and Johansen Cointegration Test.

The key findings of this study can be used as evidence by the government in creating policies that would aid the country's economic growth. Specifically, some agencies are the following: Department of Labor and Employment (DOLE), Bangko Sentral ng Pilipinas (BSP), and National Economic Development Authority (NEDA), which are responsible for implementing monetary and fiscal policies, job opportunities, development, and planning. With this, the researchers recommend that the Philippine government consider the unemployment crisis in the Philippines as a determinant of economic growth. It is proven that unemployment cannot be eliminated but can be gradually reduced. This is through the optimization of monetary and fiscal policy to increase the price levels as well as to increase the aggregate demand to lower unemployment and increase inflation with the aid of government intervention. Specifically, the government can provide new jobs and opportunities to increase labor, especially among women. With this, the firms can gain profits while the workers have no choice but to accept the job, given that they are laid off. It is vital due to the fact that it affects the Gross Domestic Product (GDP) of the Philippines. The study is highly beneficial to future research related to the New Classical Economics related to Unemployment Rate Among Females. Lastly, the authors recommend creating a different econometric model using another set of variables based on other economic theories that further increase the country's economic growth.

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