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Estimating the Nature of Relationship of Entrepreneurship and Business Confidence on Youth Unemployment in the Philippines

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Abstract

This study estimates the nature of the relationship of entrepreneurship and business confidence on youth unemployment in the Philippines over the 2001-2017 period. The paper employed a range of cointegrating regression models, namely, autoregressive distributed lag (ARDL) bounds testing approach, Johansen-Juselius (JJ) and Engle-Granger (EG) cointegration models, dynamic OLS, fully modified OLS, and canonical cointegrating regression (CCR) estimation techniques. The Granger causality based on error correction model (ECM) was also performed to determine the causal link of entrepreneurship and business confidence on youth unemployment. The ARDL bounds testing approach, Johansen-Juselius (JJ) and Engle-Granger (EG) cointegration models confirmed the existence of long-run equilibrium relationship of entrepreneurship and business confidence on youth unemployment. The long-run coefficients from JJ and dynamic OLS show significant long-run and positive relationship of entrepreneurship and business confidence on youth unemployment. While results of the long-run coefficients from fully modified OLS and canonical cointegrating regression (CCR) found that only entrepreneurship has significant and positive relationship with youth unemployment in the long-run. The Granger causality based on error correction model (ECM) estimates show evidence of long-run causal relationship of entrepreneurship and business confidence on youth unemployment. In the short-run, increases in entrepreneurship and business confidence causes youth unemployment to decrease.

Keywords: Business Confidence, Canonical Cointegrating Regression, Dynamic OLS, Fully Modified OLS, Entrepreneurship, Youth Unemployment

JEL Classification Code: J6, J7, J64, M2

1. Introduction

While the labor force grows continuously, with an increasing proportion of young people, employment generation lagged to absorb labor market entrants. As a result, the youths are especially affected by unemployment making it a critical socio-economic problem in the Philippines. Moreover, young people are more likely to be employed in

jobs of low quality, underemployed, working long hours for low wages, engaged in dangerous work or receive only short term and/or informal employment arrangements (O'Higgins, 2003; Haftendorn & Salzano, 2004). The unemployment situation of young people reflects the failure to make use of labor and available human capital to foster economic growth and global competitiveness (Chulanova et al. 2019) as they are not being used to their full potential (Šileika et al. 2004; Sy, 2013).

Cultures that value and reward entrepreneurial qualities (i.e., creativity and curiosity, motivation by success, willingness to take risks, ability to cooperate, identification of opportunities, and ability to be innovative and tolerate uncertainty) promotes development and lead to essential innovations (Herbig & Miller, 1992; Lee & Kim, 2019). Thus, entrepreneurship and business confidence can have significant impact on youth unemployment. A significant drop in entrepreneurship and business confidence can slow

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down economic activities leading to poor economic growth and recession, which can give rise to higher unemployment. Few investment projects mean potential layoff and freeze of hiring leading to a higher unemployment rate (Leve & Kapingura, 2019; Bernanke, 1983).

The relationship of entrepreneurship and business confidence on youth unemployment has been covered with ambiguity in the case of the Philippines. This study provided an empirical evidence about the nature of relationship of entrepreneurship and business confidence on youth unemployment in the Philippines for the 2001-2017 period employing a range of cointegrating regression models.

2. Theoretical Foundation

2.1. Schumpeter Effect: Entrepreneurship-Unemployment Link

Schumpeter's (1934) theory of the business cycle does demonstrate clearly how unemployment can be reduced. Innovation, which creates more jobs, is the basic force in decreasing unemployment. When entrepreneurs innovate they increase investments to materialize those innovations. Thus, according to the Schumpeter Effect, there is an inverse proportional relationship between the entrepreneurship and unemployment. That is, as entrepreneurial activity increases, unemployment decreases.

2.2. Animal Spirit: Business Confidence-Unemployment Link

John Maynard Keynes (1936) understood very well that, in times of economic disturbance, irrational thoughts might influence people as they pursue their financial self-interests. The animal spirit, according to Keynes, is how people arrive at financial decisions in times of economic uncertainty. Animal spirits represent the emotions of confidence, hope, fear, and pessimism that can affect business decision making. If spirits are low, then confidence levels will be low, if spirits are high, confidence among participants in the economy will be high. Rising business confidence reflects positive economic sentiments, which lead to more hiring. If business confidence is shaken (i.e., political instability, peace and order situation, trade barriers, tax reforms, health pandemic, etc.) businesses are unwilling to take on new risk. In a broad sense, damage to morale that results to job losses and persistent unemployment in the overall economy. Businesses struggling to preserve their existence will inadvertently contribute to a vicious cycle of rising unemployment. Theoretically, rising business confidence reduces unemployment.

3. Literature Review

3.1. Tendency Towards Entrepreneurship

Hayton et al. (2002) model of how culture is associated with entrepreneurship emphasized that enterprise culture, institutional context, policy framework, outreach of the social network, education and skills level, enterprise promotion, strength of the economy and its sectors influence the labor market and the entrepreneurship situation in a country. Using the Community Based Monitor System (CBMS) survey on Accelerated Poverty Profiling among member schools of De La Salle Philippines, Gozun and Rivera (2017) showed that education increases the wage-earning capacity of young people, thus, increasing their tendencies toward employment more than entrepreneurship. In the long run, as the wealth of young people accumulates through other streams, they tend to give high consideration toward being an entrepreneur than being employed. The study by Leve and Kapingura (2019) empirically assessed the entrepreneurial interest among male and female undergraduate and postgraduate students in the Eastern Cape Province of South Africa, using the survey research design, and a structured validated questionnaire. The results revealed that perceived time and entrepreneurial skills constraints jointly influenced entrepreneurship interest of the students. Policies must be geared in promoting the spirit of entrepreneurship among young people to help reduce joblessness. Lee and Kim (2019) analyze how the career orientation factors of startup entrepreneurs affect entrepreneurial satisfaction as well as business sustainability. The results demonstrated that the entrepreneurial creativity and managerial competence of the members of a startup can play an important role within entrepreneurial satisfaction and business sustainability. In order to improve entrepreneurial satisfaction and achieve business sustainability, it is important for startups to consider the creativity and business management competences of entrepreneurs.

The study by Dahliyah et al. (2020) analyzes the strategy of determining economic development planning on SME improvement in Indonesia. Accordingly, to strengthen regional development of SMEs, government strategy must include industrial control, community cooperatives and infrastructure improvements, strategies to improve institutional performance work capacity and work ethic, cultivation of potential technological development and improvement of the quality of the environment. Satpayeva et al. (2020) analyzed women's entrepreneurship in Kazakhstan. They observed increasing contribution of women in social-economic development, women's entrepreneurial activity is increasing, and the number of enterprises headed by women is growing. Surprisingly, women entrepreneurship in Kazakhstan thrives in the service sector. Thus, strategic actions require priority

attention: 1) export support for women entrepreneurs, 2) development of the high-tech sector of women's business, 3) development of a system of social support for motherhood, 4) development of business education among girls, 5) development of infrastructure to support women's entrepreneurship, 6) development of a system of indicators for monitoring, and 7) development of women's entrepreneurship. Sanyal et al. (2020) analyses the challenges facing SMEs in Oman in their quest for internationalization based on the OECD Model of Internationalization. It was found that finance availability was the most significant predictor of internationalization followed by market access and business environment. Government intervention for easy lines of credit and relax custom duties to support SME exporters.

3.2. Basic Skills and Job-skills Mismatch

The poor communication skills and lack of other specialist skills of young people when applying for a job is an obstacle. This implies that the increased participation of young people in education and training has not necessarily led to an increase in skills. Further exacerbating this lack of overall skill level is the presence of a job-skills mismatch, which, despite having attained higher educational qualifications, many young people end up being unemployed (Evangelista & Ortiz, 2009). Canlas and Pardalis (2009) noted a serious job-skills mismatch between the demands of the workplace and the skills being taught in the educational institutions. According to Esguerra (2009) a mismatch occurs 1) when the educational system fails to deliver the minimum capabilities that are needed by the economy, 2) due to market bias among firms who will tend to hire older and more experienced workers, 3) locational problems of supply and demand for skills, 4) rules on the minimum wage and regularization of employment – creating market inflexibility, and 5) involuntary unemployment may occur despite investment into education and training by governments. Pernia and Herrin (2003) argued that the oversupply of labor was the result of the Philippines' high fertility rate, as well as the failure of the economy to generate enough employment due to a structural problem, more specifically, a job-skills mismatch in the labor market. Canlas et al. (2006) noted the dismal growth of labor productivity and rightly argued that the country is not doing well both on labor-capital ratio and total factor productivity (TFP), which pertain to the efficient use of labor and capital. International studies conducted by Trehan (2001), Storey (1991), Evans and Leighton (1990) explained that a mismatch between demand and supply of labor may be caused by expansionary monetary and fiscal policies and powerful trade unions. For instance, unions setting higher wages than market wages, generates unemployment.

3.3. Concerns of Policy-Making

Canlas and Pardalis (2009) mentioned a number concerns to be addressed: 1) youth unemployment in the Philippines continues to increase despite of substantial economic growth, 2) a significant proportion of the young female population has been excluded from the labor force, 3) the employment situation of many young people is mostly in low-paid jobs, 4) a significant number of the unemployed did not even look for work, 5) the incidence and rate of unemployment increase as the level of educational attainment gets higher, and 6) migration of young people overseas will continue. Canlas and Pardalis (2009) also noted that the majority of young people would rather work abroad than in the Philippines. This does not augur well for the future of the Philippines unless longer-term industrial policies can be implemented that would result in greater employment opportunities at home, which would attract these people to stay or return with added skills.

4. Research Methodology

Youth unemployment can be expressed as a function of entrepreneurship and business confidence as follows: $YU = f(ENTREP, BC)$, where ENTREP and BC denote entrepreneurship and business confidence that can influence youth unemployment (YU), respectively. Converting the functional equation into its linear form:

$$YU_t = \alpha_0 + \alpha_1 ENTREP_t + \alpha_2 BC_t + e_t \quad (1)$$

where α_0 , α_1 and α_2 are parameter estimates, e_t is the error term.

The dependent variable youth unemployment is the percent of young people unemployed to the total labor force ages 15-24 accessed from the World Development Indicators by the World Bank. The independent variables used in this study are entrepreneurship and business confidence. Entrepreneurship is the rate of self-employed in total employment, which is the generally-accepted indicator of entrepreneurship (Thurik et al. 2007; Baptista & Thurik, 2007). Data for this variable was taken from Philippine Statistics Authority (PSA). Data on business confidence was gathered from the Business Expectation Survey of the Bangko Sentral ng Pilipinas (BSP). The time span covers the 2001-2017 period.

4.1. Unit Root Tests

In order to analyze the order of integration, it is necessary to test whether the variables, YU, ENTREP and BC, are stationary using augmented Dickey-Fuller (ADF) unit root test (Dickey & Fuller, 1979) and Phillips-Perron (PP) unit root

test (Phillips & Perron, 1988). If the variables are integrated processes, the empirical analysis is going to rely on the estimation of a VAR model (i.e., in first differences):

$$\Delta z_t = \delta_0 + \delta_1 Z_{t-1} + \sum_{i=1}^k \alpha_i \Delta Z_{t-i} + \mu_t \tag{2}$$

$$\Delta z_t = \delta_0 + \delta_1 t + \delta_2 Z_{t-1} + \sum_{i=1}^k \alpha_i \Delta Z_{t-i} + \mu_t \tag{3}$$

where t and k refers to the time and number of lags. ΔZ_{t-1} refers to the first difference of the variable with k lags. The term μ_t adjusts the errors of autocorrelation. The parameters $\alpha_i, \delta_0, \delta_1$ and δ_2 are estimated.

4.2. Cointegration Models

4.2.1. Autoregressive Distributed Lag (ARDL) Bounds Testing Model

This study employed the autoregressive distributed lag (ARDL) bounds testing approach developed by Pesaran et al. (2001) to analyze the long-run relationship of entrepreneurship and business confidence on youth unemployment. The unrestricted error correction ARDL model for equation (1) is presented as follows:

$$\begin{aligned} \Delta YU_t = & \alpha_0 + \beta_1 YU_{t-1} + \beta_2 ENTREP_{t-1} + \beta_3 BC_{t-1} \\ & + \sum_{i=1}^p \delta_{1i} \Delta YU_{t-i} + \sum_{i=0}^p \delta_{2i} \Delta ENTREP_{t-i} \\ & + \sum_{i=0}^p \delta_{3i} \Delta BC_{t-i} + \varepsilon_t \end{aligned} \tag{4}$$

where Δ is the difference operator, p is the lag length, α, β and δ are parameter estimates, and ε_t is the random error term.

4.2.2. Johansen and Juselius Cointegration Model

The standard Johansen-Juselius (JJ) cointegration technique was also performed. The equation for the JJ test in a VAR model can be expressed as follows:

$$\begin{aligned} \Delta Z_t = & \varphi + \Gamma_1 \Delta Z_{t-1} + \Gamma_2 \Delta Z_{t-2} + \dots \\ & + \Gamma_{p-1} \Delta Z_{t-p} + \Gamma Z_{t-1} + \mu_t \end{aligned} \tag{5}$$

where φ is the vector (Px1) of constant terms, Δ is the difference operator, Z_t is the Px1 vector of variables in the model, Γ is the coefficient matrix, μ_t is the vector (Px1) of disturbance term and Π is the (PxP) coefficients matrix. The matrix of Π shows the long-run relationship between Z_t variables while the rank of Π means the number of linearly dependent and stationary linear combination of variables. As proposed by Johansen (1998) and Johansen and Juselius

(1990) there are two test statistics for testing the number of co-integrating vectors in the VAR model, trace test and maximum-eigen value test.

4.2.3. Engle and Granger (EG) Residual-based Cointegration Model

The Engle and Granger (1987) residual-based cointegration was also administered. Equation (1) was estimated using OLS and tested the residual series for stationarity using ADF test. The test statistic was compared with MacKinnon (2010) critical values. If the residuals of estimated model are stationary, then equation (1) is a long-run model. The ADF t-statistic was estimated as follows:

$$\Delta \hat{e}_t = \rho \hat{e}_{t-1} + \sum_{j=1}^k \beta_j \Delta \hat{e}_{t-j} + V_t \tag{6}$$

4.2.4. Fully-modified Ordinary Least Squares (FMOLS) Cointegration Model

Fully-modified OLS is a semi-parametric approach to estimate long-run parameters. It gives consistent parameters even in small sample size and overcomes the problems of endogeneity, serial correlation, omitted variable bias, measurement errors and allows for the heterogeneity in the long-run parameters. The FMOLS estimator can be obtained as follows:

$$\hat{O}_{FME} = \left(\sum_{t=1}^T Z_t Z_t' \right)^{-1} \left(\sum_{t=1}^T Z_t Y_t^+ - T \left[\lambda_{12_0}^+ \right] \right) \tag{7}$$

where Y_t^+ and $\lambda_{12_0}^+$ terms correct the endogeneity and serial correlation.

4.2.5. Dynamic Ordinary Least Squares (DOLS) Cointegration Model

The dynamic OLS adopts a parametric approach in estimating long-run relationship in which the variables are integrated in different order, but still cointegrated (Kurozumi & Hayakawa, 2009; Masih & Masih, 1996). The DOLS estimators, which are unbiased and asymptotically efficient can be obtained from least-squares estimates:

$$y_t = a + bX_t + \sum_{i=-k}^{i=k} \varnothing_i \Delta X_{t+1} + \varepsilon_t \tag{8}$$

where b as the long-run elasticity. The term \varnothing 's are the coefficients of leads and lags differences of I(1) regressors which are considered as nuisance parameters but they adjust for possible endogeneity, autocorrelation, and non-normal residuals.

4.2.6. Canonical Cointegrating Regression (CCR) Model

The CCR method can be used for testing cointegrating vectors in a model with integrated processes of I(1). This method, a single equation regression, can be applied in multivariate regression without modification and losing its efficiency, thus the CCR estimator is obtained as:

$$\hat{O}_{CCR} = \left(\sum_{t=1}^T Z_t^* Z_t^{*1} \right)^{-1} \sum_{t=1}^T Z_t^* Y_t^* \quad (9)$$

The Granger causality based on error correction model (ECM) was also performed to determine the causal link of entrepreneurship and business confidence on youth unemployment.

5. Results and Discussion

The ability of young people to engage in productive activities has both social and economic consequences for an economy. However, the intensity of youth unemployment is quite prevalent and widespread. In the Philippines, young people aged 15-24 saw an average of 9.2506 percent for the period 2001-2017 (see Table 1). Table 1 also depicts the entrepreneurship data (i.e., self-employed) of the Philippines

from 2001 to 2017 with an average of 44.7353 percent. Rising business confidence reflect positive economic prospects, which lead to more hiring. During the 2001-2017 period, business confidence averaged 28.2165 percent. Moreover, the Jarque-Bera statistics suggest, asymptotically, we do not reject the normality assumption.

5.1. Unit Root Test Results

The unit root test results were reported in Table 2. The ADF test results were statistically significant at 1 percent, 5 percent and 10 percent for both ENTREP and BC at levels I(0) and first difference I(1) signifying the absence of unit root. In the case of YU, ADF is not significant at I(0), that is, has a unit root or non-stationary at levels and must be tested at first difference I(1). At I(1), YU is stationary, signifying absence of unit root at order 1. The PP test shows that YU and ENTREP are non-stationary at levels I(0) but they are stationary at their first difference I(1) at a 1 percent level of significance, hence the time series are integrated of order 1, I(1). The PP test of BC show stationarity at levels I(0) and first difference I(1) with significance at 1 percent and 5 percent levels. Overall, YU becomes I(1) after first differencing, and ENTREP and BC are integrated at I(0) and I(1).

Table 1: Descriptive Statistics

	Youth Unemployment	Entrepreneurship	Business Confidence
Mean	9.2506	44.7353	28.2165
Maximum	10.3300	50.7000	47.9000
Minimum	7.4100	37.8000	(15.2000)
Jarque-Bera	3.1603	1.6038	1.9421
Probability	0.2059	0.4485	0.3787

Table 2: ADF and PP Unit Root Test Results

Variable	Levels		First Difference		Order of Integration
	Constant	Constant, Linear Trend	Constant	Constant, Linear Trend	
Augmented Dickey-Fuller (ADF)					
YU	-0.6814	-1.1259	-4.5387***	-3.8934**	I(1)
ENTREP	0.1942	-5.5384***	-2.6669*	-4.6344***	I(0), I(1)
BC	-3.1807**	-3.7492**	-4.7275***	-4.6163***	I(0), I(1)
Phillips-Perron (PP)					
YU	-0.6814	-0.9402	-4.5387***	-9.3599***	I(1)
ENTREP	1.3432	-2.6525	-5.0390***	-4.9975***	I(1)
BC	-3.1932**	-8.3083***	10.8487***	-10.2766***	I(0), I(1)

Note: ADF test was performed using Schwarz information criterion and the automatic lag selection set at 3 lags. PP test was performed with Bartlett Kernel and Newey-West Bandwidth. Statistical significance: ***(1%), **(5%) and *(10%).

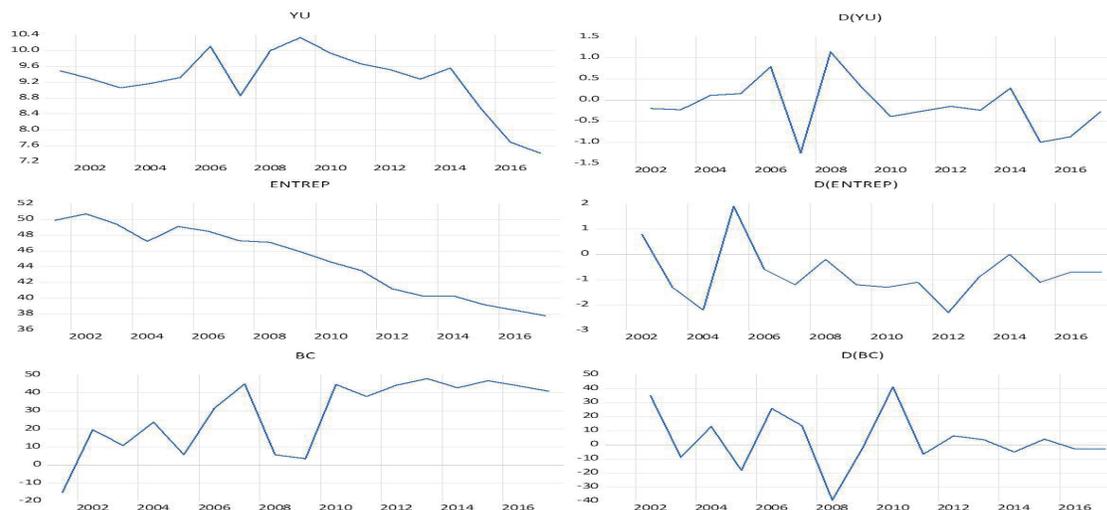


Figure 1: Nonstationary and Stationary Plots

Table 3: ARDL Bounds Testing Results

Test Statistic	Value	Significance	I(0)	I(1)
F-statistic	4.9866	10%	2.6300	3.3500
		5%	3.1000	3.8700
		1%	4.1300	5.0000
ARDL Long-run Coefficients				
Variable	Coefficient	t-Statistic	Prob.	
ENTREP	0.2238	1.1741	0.3612	
BC	0.0268	0.9810	0.4300	
C	-2.3435	-0.2430	0.8307	

In Figure 1, the nonstationarity and stationarity of the variables were presented. The nonstationary series YU, ENTREP and BC were compared to their stationary series D(YU), D(ENTREP) and D(BC). The plots of the series YU, ENTREP and BC exhibit a trend suggesting nonstationarity. On the other hand, the plots of D(YU), D(ENTREP) and D(BC) shows pattern with no discernible upward nor downward trend, suggesting stationarity.

5.2. Cointegration Models Test Results

5.2.1. Autoregressive Distributed Lag (ARDL) Bounds Testing Model

The estimated ARDL model established the cointegration of entrepreneurship and business confidence on youth unemployment. As shown in Table 3, the F-statistic of 4.9866 is greater than the upper bound critical value of 3.8700 at 5

percent significance level. These results justify the long-run relationship of entrepreneurship and business confidence on youth unemployment. In the long run, entrepreneurship and business confidence have positive relationship with youth unemployment, but not statistically significant.

5.2.2. Johansen and Juselius Cointegration Model

The results of the Johansen and Juselius cointegration test confirmed the existence of long-run relationship of entrepreneurship and business confidence on youth unemployment from 2001 to 2017. Both the trace test and max-eigen test indicates 1 cointegrating equation at 0.05 level of significance.

The normalized cointegrating coefficients are reported in Table 5. According to the results, entrepreneurship and business confidence exhibit a positive and significant relationship with youth unemployment in the long run with

Table 4: Johansen and Juselius Cointegration Results

Hypothesized No. of CE(s)	Trace Statistic	5 percent		Max-Eigen Statistic	5 percent	
		Critical Value	Prob.**		Critical Value	Prob.**
None *	36.9030	29.7971	0.0064	22.4157	21.1316	0.0328
At most 1	14.4873	15.4947	0.0705	14.0674	14.2646	0.0537
At most 2	0.4200	3.8415	0.5169	0.4200	3.8415	0.5169

Trace test indicates 1 cointegrating eqn(s) at the 0.05 level * denotes rejection of the hypothesis at the 0.05 level
 **MacKinnon-Haug-Michelis (1999) p-values

Table 5: Normalized Cointegrating Coefficients

D(YU)	D(ENTREP)	D(BC)
1	-1.1837**	-0.1554***
t-statistic	2.6950	5.3840

***indicates significance at the 1 percent level
 **indicates significance at the 5 percent level

Table 6: Engle and Granger Cointegration Results

D(RESID) has a unit root		ADF Test	
		t-Statistic	Prob.*
		-5.0152	0.0030
Test critical values:	1% level	-4.2001	
	5% level	-3.1754	
	10% level	-2.7290	

level of significance at 5 percent and 1 percent, respectively. Thus, the first normalized cointegrating equation can be constructed as: $YU = 1.1837ENTREP + 0.1554BC$.

5.2.3. Engle and Granger (EG) Residual-based Cointegration Model

Similarly, the Engle and Granger (EG) residual-based cointegration test indicates cointegration between the variables (see Table 6). This is due to the fact that estimated ADF and PP statistics of the residual after first differencing D(RESID) is stationary at 1 percent level. Hence, any deviation in the existing equilibrium relationship between YU, ENTREP and BC are temporary and move together in the long run.

5.2.4. FMOLS, DOLS and CCR Cointegration Models

The FMOLS results in Table 7 reveal a statistically significant positive relationship of entrepreneurship on youth unemployment at 10 percent level of significance. Regarding business confidence, it has positive influence, but insignificant. Results of the DOLS estimation technique

for cointegrating regression show statistically positive relationship of ENTREP and BC on YU at 5 percent and 10 percent levels, respectively. Thus, the nature of long-run relationship of entrepreneurship and business confidence on youth unemployment, is found to be positive and significant. In this case, entrepreneurship and business confidence leads to increases in youth unemployment, or more entrepreneurship and business confidence means higher youth unemployment. The CCR results reveal a statistically significant positive long-run relationship of entrepreneurship on youth unemployment at 10 percent level of significance. As for business confidence, it has positive influence, but insignificant.

In summary, the ARDL, JJ and EG cointegration models confirmed the existence of long-run equilibrium relationship of entrepreneurship and business confidence on youth unemployment. Results of the long-run coefficients from JJ and DOLS estimation techniques show significant long-run and positive relationship of entrepreneurship and business confidence on youth unemployment. While results of the long-run coefficients from FMOLS and CCR found that only entrepreneurship has significant and positive

Table 7: FMOLS, DOLS and CCR Results

Variable	Coefficient	t-stat.	Prob.	R ²	Adj. R ²
Fully-modified Ordinary Least Squares					
ENTREP	0.1580	2.0303	0.0633	0.1557	0.0277
BC	0.0180	0.8923	0.3884		
C	1.5057	0.3833	0.7077		
Dynamic Ordinary Least Squares					
ENTREP	0.3342	3.1855	0.0244	0.7483	0.3455
BC	0.0619	1.9973	0.1023		
C	-8.2138	-1.4538	0.2057		
Canonical Cointegrating Regression					
ENTREP	0.1813	1.9864	0.0685	0.1286	-0.0055
BC	0.0209	0.8938	0.3877		
C	0.4052	0.0876	0.9315		

Table 8: Granger Causality Based on Error Correction Estimates

Variable	Coefficient	t-stat.	Prob.
Constant	-2.9567	-6.2687	0.0245
D(ENTREP(-1))	-0.3090*	-3.8952	0.0600
D(BC(-1))	-0.0230**	-5.0554	0.0370
ECM(-1)	-1.2616**	-6.2535	0.0246

R-squared = 0.9728 Adjusted R-squared = 0.9116 F-statistic = 15.8979 Prob. (F-statistic) = 0.0086 DW = 3.0750
 Statistical significance: ***(1%), **(5%) and *(10%)

relationship with youth unemployment in the long run. To this end, it is obvious that the nature long-run relationship of entrepreneurship and business confidence on youth unemployment in the Philippines is positive. This means that, in the case of the Philippines, an increase in entrepreneurial activities and business confidence leads to an increase in youth unemployment in the long run. The positive long-run relationship of entrepreneurship and business confidence on youth unemployment may be explained by the presence of job-skills mismatch in the Philippine labor market (Canlas & Pardalis, 2009; Esguerra, 2009; Pernia & Herrin, 2003; Trehan, 2001; Storey, 1991; Evans & Leighton, 1990).

In view of the above cointegration results, Table 8 also presents the Granger causality based on ECM estimates. The results indicate that the lagged changes in entrepreneurship (D(ENTREP(-1))) and business confidence (D(BC(-1))) have inverse and statistically significant relationship on youth unemployment in the short-run at 10 percent and 5 percent levels, respectively. Therefore, in the short run, increases in entrepreneurship and business confidence causes youth unemployment to decrease (i.e., Schumpeter Effect and Keynes' Animal Spirit). The ECM(-1) = -1.2616 with p-value of 0.0246 means that any change in the present equilibrium level is a temporary phenomenon and will restore back to the long-run path. According to the magnitude of ECM_{t-1} any

deviation of the equilibrium will be corrected at the speed of 126.16 percent annually. The statistically significant error correction term shows evidence in support of long-run causal relationship from entrepreneurship and business confidence to youth unemployment. The CUSUM test and CUSUM of squares test (Figure 2) show that the estimated parameters are stable over the 2001-2017 period.

6. Conclusions

This study provided an empirical evidence about the nature of the relationship of entrepreneurship and business confidence on youth unemployment in the Philippines employing various cointegration models. The ARDL, JJ and EG cointegration models confirmed the existence of long-run equilibrium relationship of entrepreneurship and business confidence on youth unemployment. The long-run coefficients from JJ and DOLS estimation techniques show significant long-run and positive relationship of entrepreneurship and business confidence on youth unemployment. While results of the long-run coefficients from FMOLS and CCR found that only entrepreneurship has significant and positive relationship with youth unemployment in the long run. In the case of the Philippines, increases in entrepreneurial activities and business confidence leads to increases in youth

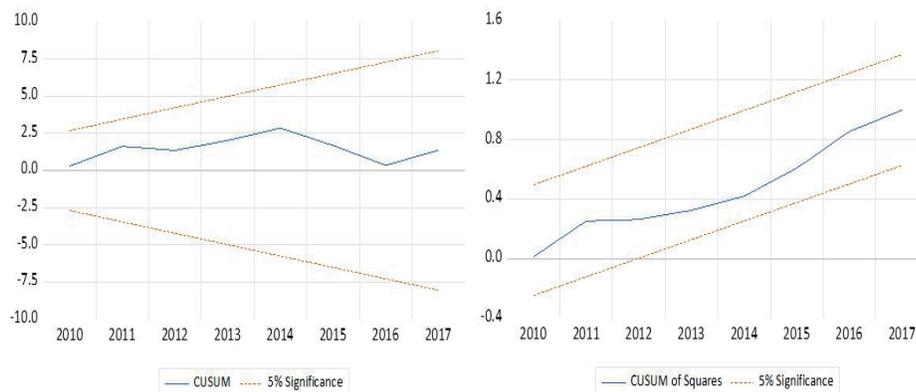


Figure 2: CUSUM and CUSUM of Squares Plots

unemployment in the long-run. The Granger causality based on error correction model show evidence of long-run causal relationship from entrepreneurship and business confidence to youth unemployment. In the short run, increases in entrepreneurship and business confidence causes youth unemployment to decrease.

Addressing youth unemployment requires both short- and long-term measures that involve increasing demand for labor, improving education and skills, and labor market policy priority programs and projects that improve the employability of the youths. Obviously, entrepreneurship is a viable option for young people because of their great creativity, dynamism and untapped talents, easy financial access and sharpening their entrepreneurial skills through training must be provided. Also, it is important to institute programs that comprehensively recognize the value of maintaining business confidence in the economy. Since there is the need to look at policies and interventions to maintain business confidence.

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