Do Entrepreneurship and Economic Growth Affect Poverty, Income Inequality and Economic Development?

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ABSTRACT
The Philippines encountered problems concerning reduction of poverty, filling gaps between income inequalities and achieving economic development. From these ideas, the big question to ask was: “What can be the solution?” Furthermore, entrepreneurship and economic growth had an increasing pattern. Hence, the researchers examined the impact of entrepreneurship and economic growth on poverty, income inequality and economic development. This study used regional data to obtain sufficient number of observations, obtained from official government documents. The regression models followed that of Yanya et al. (2013) which incorporated the theoretical model of Beck et al. (2005) by running regression on cross sectional data and applied a standard Hausman test to choose between Fixed Effects and Random Effects which examined the magnitude and the effects of each explanatory variable to the dependent variables. The results suggested that economic growth plays a vital role on poverty, income inequality and economic development; entrepreneurship has impact on economic development but little or no impact on poverty and income inequality in the Philippines.

Keywords: entrepreneurship, poverty, income inequality, economic development

1.1 BACKGROUND/ OBJECTIVES AND GOALS
The events that occurred in poverty, income inequality and economic development in the Philippines led to a question of “Do entrepreneurship and economic growth affect poverty, income inequality and economic development?” which generated the main objective of the researchers – to examine the impact of entrepreneurship, measured by the number of Micro, Small and Medium Enterprises, and economic growth, measured by regional gross domestic product, on poverty, income inequality and economic development in the Philippines.

1.2 METHOD
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To evaluate the relationship of entrepreneurship and economic growth with poverty, income inequality and economic development, the researchers followed the method used by Yanya et al. (2013) which incorporated the theoretical model of Beck et al. (2005) replacing the income quintile of the poor to human development index and instead of using gross provincial product (GPP), the regional gross domestic product (RGDP) was employed.

To measure the dependent variables, the researchers used the headcount ratio, gini coefficient and human development index; the independent variables were represented by the number of establishments comprising of Micro, Small and Medium Enterprises (MSMEs) and regional gross domestic product (RGDP). Due to every three-year release of data for poverty, income inequality and economic development, the researchers used regional data to obtain sufficient number of observations to avoid bias and non-normality distribution of data. Furthermore, the researchers acknowledge that the number of MSMEs does not fully represent the definition of entrepreneurship. However, it could be the nearest approximation for entrepreneurship.

In addition, this paper used regional panel data during the specific points of time from 1997 to 2012 (96 observations) to run a multiple regression. The researchers applied a standard Hausman test to choose between Fixed Effects and Random Effects that would examine the magnitude and the effects of each explanatory variable to the dependent variables.

### 1.3 ECONOMETRIC MODELS

1.3.1 To evaluate the relationship of entrepreneurship and economic growth on poverty, the researchers regressed the following equation:

\[
HCR_{i,t} = \beta_0 + \beta_1 \log(RGDP_{i,t}) + \beta_2 \log(MSMEs_{i,t}) + c_i + u_{it}
\]

where:
- \(HCR_{i,t}\) = Headcount Ratio
- \(RGDP_{i,t}\) = Regional Gross Domestic Product
- \(MSMEs_{i,t}\) = Micro, Small and Medium Enterprises
- \(u_{it}\) = the idiosyncratic error with mean 0
- \(c_i\) = the unobserved time constant characteristics of an individual which is the effect the researchers specifically want to control in the panel data model

1.3.2 To evaluate the relationship of entrepreneurship and economic growth on income inequality, the researchers regressed the following equation:

\[
GCI_{i,t} = \beta_0 + \beta_1 \log(RGDP_{i,t}) + \beta_2 \log(MSMEs_{i,t}) + c_i + u_{it}
\]

where:
- \(GCI_{i,t}\) = Gini Coefficient Ratio
- \(RGDP_{i,t}\) = Regional Gross Domestic Product
- \(MSMEs_{i,t}\) = Micro, Small and Medium Enterprises
- \(u_{it}\) = the idiosyncratic error with mean 0
\[ c_i = \text{the unobserved time constant characteristics of an individual which is the effect the researchers specifically want to control in the panel data model} \]

1.3.3 To evaluate the relationship of entrepreneurship and economic growth on economic development, the researchers regressed the following equation:

\[ \text{HDI}_{i,t} = \beta_0 + \beta_1 \log(\text{RGDP}_{i,t}) + \beta_2 \log(\text{MSMES}_{i,t}) + c_i + u_{it} \]

where:
- \( \text{HDI}_{i,t} \) = Human Development Index
- \( \text{RGDP}_{i,t} \) = Regional Gross Domestic Product
- \( \text{MSMES}_{i,t} \) = Micro, Small and Medium Enterprises
- \( u_{it} \) = the idiosyncratic error with mean 0
- \( c_i \) = the unobserved time constant characteristics of an individual which is the effect the researchers specifically want to control in the panel data model

**1.4 RESULT**

1.4.1 Poverty Results

The regression results showed that the regional gross domestic product (LOG(RGDP)) (0.0000) was a significant determinant of the poverty at 10% level of significance. While the Micro, Small and Medium Enterprises (LOG(MSMES)) was an insignificant determinant of poverty at 10% level of significance. A zero (0) F-statistic proved that the model is significant at 10% level of significance. The value for R-squared was 0.907378, which meant that 90.74% of the changes in the headcount ratio could be explained by the changes in the regional gross domestic product. This was a clear indication that the RGDP was a significant determinant of poverty. It also showed that the said variable was negatively related to poverty.

1.4.2 Income Inequality Results

The regression results showed that one of the independent variables, the regional gross domestic product (LOG(RGDP)) (0.1000) was a significant determinant of the income inequality at 10% level of significance. However, the Micro, Small and Medium Enterprises (LOG(MSMES)) was an insignificant determinant of income inequality at 10% level of significance. A zero (0) F-statistic proved that the model was significant at 10% level of significance. The value for R-squared was 0.931336, which meant that 93.13% of the changes in the gini coefficient could be explained by the changes in the regional gross domestic product. This was a clear indication that the RGDP was a significant determinant of income inequality. It also showed that the said variable was negatively related to income inequality.
1.4.3 Economic Development Results

The regression results showed that two of the independent variables, the regional gross domestic product (LOG(RGDP) (0.0005)) and the Micro, Small and Medium Enterprises (LOG(MSMES) (0.0458)) were significant determinants of the economic development at 10% level of significance. A zero (0) F-statistic proved that the model was significant at 10% level of significance. The value for R-squared was 0.702508, which meant that 70.25% of the changes in the human development index could be explained by the changes in the regional gross domestic product and the changes in the Micro, Small and Medium Enterprises. This was a clear indication that the regional gross domestic product and the Micro, Small and Medium Enterprises were significant determinants of the human development index. It also showed that both variables were positively related to each other.

The results from the regression analysis showed that there was a negative relationship between economic growth, and poverty and income inequality. It entailed that a percent (1%) increase of RGDP accounted to poverty could lead to a decrease of 3.3646 and a decrease of 0.0071 to income inequality. Whereas, the analysis revealed that there was a positive relationship between the economic growth and the economic development. It meant that a percent (1%) increase of RGDP accounted to economic development could lead to an increase of 0.0258. Moreover, there was a positive relationship between the entrepreneurship and economic development. Hence, a percent (1%) increase of MSMEs accounted to the human development index could lead to an increase of 0.0906.

The researchers take these results as evidence that economic growth plays a vital role on poverty, income inequality and economic development; entrepreneurship has impact on economic development but little or no impact on poverty and income inequality in the Philippines.

APPENDIX

Table 1: Hausman Test for Poverty

<table>
<thead>
<tr>
<th>Correlated Random Effects - Hausman Test</th>
<th>Test Summary</th>
<th>Chi-Sq. Statist</th>
<th>Chi-Sq. d.f.</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equation: Untitled</td>
<td>Cross-section random</td>
<td>5.65314</td>
<td>2</td>
<td>0.0592</td>
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### Table 2: Hausman Test for Income Inequality

<table>
<thead>
<tr>
<th>Correlated Random Effects - Hausman Test</th>
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</thead>
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<tr>
<td>Equation: Untitled</td>
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<tr>
<td>Test cross-section random effects</td>
<td></td>
</tr>
<tr>
<td>Test Summary</td>
<td>Chi-Sq. Statistic</td>
</tr>
<tr>
<td>Cross-section random</td>
<td>18.009626</td>
</tr>
</tbody>
</table>

### Table 3: Hausman Test for Economic Development

<table>
<thead>
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<tr>
<td>Equation: Untitled</td>
<td></td>
</tr>
<tr>
<td>Test cross-section random effects</td>
<td></td>
</tr>
<tr>
<td>Test Summary</td>
<td>Chi-Sq. Statistic</td>
</tr>
<tr>
<td>Cross-section random</td>
<td>18.009626</td>
</tr>
</tbody>
</table>

### Table 4: Regression Result for Poverty

| Dependent Variable: HCR                |  |
| Method: Panel Least Squares            |  |
| Date: 09/27/15 Time: 10:55             |  |
| Sample (adjusted): 1997 2012           |  |
| Periods included: 6                    |  |
| Cross-sections included: 18            |  |
| Total panel (unbalanced) observations: 96 |  |

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>80.88851</td>
<td>47.32678</td>
<td>1.709149</td>
<td>0.0915</td>
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<tr>
<td>LOG(RGDP)</td>
<td>-3.364639</td>
<td>0.725987</td>
<td>-4.634574</td>
<td>0.0000</td>
</tr>
<tr>
<td>LOG(MSMES)</td>
<td>-0.892350</td>
<td>4.63857</td>
<td>-0.192376</td>
<td>0.8480</td>
</tr>
</tbody>
</table>

| Effects Specification                  |  |
|----------------------------------------|  |
| R-squared                              | 0.907378 | Mean dependent var | 38.95521 |
| Adjusted R-squared                     | 0.884223 | S.D. dependent var | 13.51954 |
| S.E. of regression                     | 4.600164 | Akaike info criterion | 6.073113 |
| Sum squared resid                      | 1608.275 | Schwarz criterion   | 6.607352 |
| Log likelihood                          | -271.5094| Hannan-Quinn criter. | 6.289061 |
| F-statistic                            | 39.18644 | Durbin-Watson stat  | 1.762473 |
| Prob(F-statistic)                      | 0.000000 |                  |        |
Table 5: Regression Result for Income Inequality

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>1.370907</td>
<td>0.722709</td>
<td>1.896901</td>
<td>0.0655</td>
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<tr>
<td>LOG(RGDP)</td>
<td>-0.007112</td>
<td>0.004219</td>
<td>-1.68573</td>
<td>0.1000</td>
</tr>
<tr>
<td>LOG(MSMES)</td>
<td>-0.033467</td>
<td>0.034835</td>
<td>-0.960737</td>
<td>0.3428</td>
</tr>
</tbody>
</table>

R-squared: 0.931336  Mean dependent var: 0.431629
Adjusted R-squared: 0.893391  S.D. dependent var: 0.042975
S.E. of regression: 0.014032  Akaike info criterion: -5.418398
Sum squared resid: 0.007482  Schwarz criterion: -4.650472
Log likelihood: 184.5519  Hannan-Quinn criter.: -5.118020
F-statistic: 24.54390  Durbin-Watson stat: 2.443298
Prob(F-statistic): 0.000000
Table 6: Regression Result for Economic Development

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>-1.459571</td>
<td>0.391664</td>
<td>-3.726588</td>
<td>0.0007</td>
</tr>
<tr>
<td>LOG(RGDP)</td>
<td>0.025778</td>
<td>0.006676</td>
<td>3.861062</td>
<td>0.0005</td>
</tr>
<tr>
<td>LOG(MSMES)</td>
<td>0.090646</td>
<td>0.043765</td>
<td>2.071221</td>
<td>0.0458</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>S.D.</th>
<th>Rho</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cross-section random</td>
<td>0.088851</td>
<td>0.9617</td>
</tr>
<tr>
<td>Idiosyncratic random</td>
<td>0.017743</td>
<td>0.0383</td>
</tr>
</tbody>
</table>

ACKNOWLEDGEMENTS

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The researchers acknowledge the responsibility for any errors present in this paper and should not cause damage to the reputations of the aforementioned revered individuals.
REFERENCES


