

## Population Growth versus Job Generation: Addressing Economic Disparity in the Philippines

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### *Abstract*

Economic disparity, inequality, and poverty have been central when examining the challenges of employment generation, better quality of employment, and decent way of life. This study explores the possible dynamics from an economic perspective resulting from the job-seeking behaviour of the graduates and job generation. Changes in the characteristics of the work location areas shows a variation in the number of areas each job seeker looks at when choosing a place that optimizes the jobseeker's utility and the options of employment created in the country. The research paper utilized the NetLogo, a multi-agent programming language and modeling environment for simulating complex natural and social phenomena. Specifically, the Economic Disparity NetLogo Model simulates the Philippine context using the socio-economic status of the agents to determine how their preferences for choosing a location to live impacts on employment conditions. In the study, the work location area is affected by variations in the two factors, Factor A being the number of location each job seeker looks at when choosing a place that optimizes the jobseeker's utility, and Factor B being the number of places of employment created in the country. Four scenarios are simulated by the model when the two factors are set at low or high levels to determine the time for a job location to become saturated. The variation of the factors created four scenarios. Scenarios B and D with large job seeker population and more places of employment created took 28 years to reach job saturation point. Scenarios A and C with a small jobseeker population and few places of employment created took 11 years. In all scenarios, the saturation point reached 14 ticks.

Keywords: Netlogo, job creation, job generation, economic disparity, inequality

### *Introduction*

The economic disparity can be a signal of the lack of income mobility and opportunity – a perceived reflection of repeated disadvantage for a particular segment of the society. The distinction between inequality of outcomes measured by income, wealth or spending, and

inequality of opportunities as attributed to the differences in circumstances beyond the control of the individual, such as ethnicity, place of birth, gender or family background attributed to inequality.

The primary goal, among the 8 Millennium

Development Goals for 2015 after the Millennium Summit of the United Nations in 2000, is to eradicate extreme poverty and hunger. This was further strengthened by the 17 identified Sustainable Development Goals in 2014, of which still at number 1 is no poverty. Some countries have already achieved many goals, while others are still not on track.

The analysis of the poverty incidence data measures the income or consumption of people if it is within, above or below the determined threshold called the poverty line. In 2015, the Poverty Incidence among Filipinos was 21.6 percent. It indicated that 21.6% of Filipinos were not able to meet their basic food and non - food needs because of the lack of income. In 2012, at the same period, it was recorded at 25.2 percent. With the gap becoming more pronounced among other national concerns, governments address it through employment. Statistics on job generation indicates growth in services which account for 57% of the economy.

According to the National Economic and Development Authority (NEDA), poverty persists in the Philippines because of the lack of good jobs. With the current population of 102,318,456, the economic sector created only 1.59 million jobs. NEDA further explained that in 2012, 37.6 million Filipinos were employed, slightly higher than 36 million in 2010. Despite the efforts in job creation, unemployment in the past few years was at or above 7% causing poverty to persist. Even if there was an achieved significant improvements in employment between 2010 and 2012, unemployment remained high at 7.4% in 2010 and 7% in 2012. 60% of economic growth happened in only three regions in Luzon, namely, the National Capital Region, Region III, and Region IV-A. Nationwide distribution among three main islands indicates that Luzon's share in GDP slightly increased from 61.7% in 2009 to 62.4% in 2011. The trend is opposite in Mindanao where GDP share declined from 11.2 in 2009 to 10.8% in 2011. Visayas' GDP remained below 13% in the three years.

In this study, through the use of a simulation, particularly the Economic Disparity NetLogo Model, it examined from an economic perspective how graduates choose employment. The socio- economic status to know the preferred location to live shows the categories based on income, the clustering of services in more affluent areas, and the attitude of people that will ultimately lead to a condition on proximity, or sprawl with emphasis on cost or quality. These same properties then change based on where the different populations settle.

In the context of simulation, the behaviour of the systems speed understanding without the actual testing. The model represents the real systems via simulation, allowing the dynamics of the different variables. It supports experimentation that takes place in the software, where it generates data to meet the objectives. This allows analysis with the different alternatives formed after simulation.

It is then the primary concern of this research study to examine the nature, extent, and impact of employment on poverty alleviation in the Philippines. The paper hopes to generate sufficient and strategic approaches to employment, especially in urban areas. With urban poverty on the rise, the study aimed to contribute to a comprehensive approach to job generation for poverty reduction even if the number poor households in the informal sector in urban areas continue to rise.

### *Objectives*

The paper intended to identify the job-seeking behaviour of the graduates, through simulation, which illustrates the movement of the graduates from their localities to job sites. Their job location preferences and consequently the patterns of the spread or movement of the workforce are formed.

### *The Model*

Authored by Uri Wilensky in 1999, NetLogo

is a multi-agent programming language and modeling environment for simulating complex natural and social phenomena. Netlogo helps the user to simulate and play with the behavior of variables from different conditions. It is also an environment where researchers can create their individual models. It contains a Models Library, a large collection of pre-written simulations that users can use and modify. The simulations have diverse areas for exploration.

The study used the Economic Disparity Netlogo model (Felsen & Wilensky, 2007). It shows the exploration of job patterns from an economic perspective. Both the rich and the majority impoverished determine job locations on three preferences of a job location, namely the perceived quality, the cost of living, and the proximity to services/job sites. These three properties being considered by job seekers could lead them to urban work locations where opportunities are high, and public services, as well as amenities, are adequate. Government and industries may also perceive that employment creation in urban areas has positive implications to poverty reduction and higher living standards. However, eventually, as more and more job seekers move to urban job sites, indications could lead to urban poverty.

#### *Assumptions of the Economic Disparity NetLogo Model*

The two populations, one rich and one poor, who settle based on three properties of the job location, namely, the perceived quality, the cost of living, and the proximity to services/job sites are discussed here.

This model holds that jobs move toward where the wealth is. If there is more money in a certain area, then there are more affluent people who spend that money on goods and services. People (shown as small blue and pink squares) move in and move out. When a new place of employment comes into the world, it randomly samples some number of locations (controlled by the NUMBER-OF-TESTS slider), and chooses the one with the highest

price (i.e., land-value). Job sites (shown as red circles on the map) are created and destroyed. These people want to live near jobs, but also consider the price (cost of living) and quality of prospective locations.

There are two fundamentally different types of people in this model -- "poor" people (shown in blue) and "rich" people (shown in pink), and they have differing priorities. When people enter the world, they randomly sample some number of locations, and choose to inhabit the one that maximizes "utility" for them. Each "tick" of the model, some number of new poor people (controlled by the POOR-PER-STEP slider) and new rich people (controlled by the RICH-PER-STEP slider) enter into the world. Both types of people wish to be located close to a place of employment.

#### *Output of the Economic Disparity NetLogo Model*

The model replicates the effect on the land the job seekers inhabit. The output of the five view modes, controlled by the buttons includes: 1. VIEW PRICE displays the land-price value of each location. White being a high price, black being a low price, and the various shades of yellow are in between; VIEW QUALITY shows the quality value of each location. White being a high quality, black being a low quality, and the various shades of green are in between; VIEW DISTANCE displaying the distance from each location to a place of employment. Bright colors connote closeness; VIEW RICH-UTILITY exhibits the utility every rich people assign to each location on the map. Lighter hue designates better utility, and darker tint designates worse utility; and VIEW-POOR-UTILITY presents the utility that poor people assign to each location on the map.

Lighter values designate better utility, and darker values designate worse utility. The rich job seekers seek a location that has good quality, heedless of price; whereas, the less privileged prefer locations with low price, disregarding quality. Rich people are moving into an area

knowing that the land price and quality will increase; whereas, poor people cause the land price and quality to decrease. The highest utility areas may still be vacant, since each agent only samples a small set of the patches in the world.

### *Parameters of Economic Disparity NetLogo Model*

#### a. Number-of-Tests slider

This refers to the number of locations each job seeker looks at when choosing an area that optimizes the job seekers' utility, which affects the density of the population of job seekers. The model assumes that jobs move toward where the wealth is. These people want to live near jobs, but also consider the price (cost of living) and quality of prospective locations. It affects how many locations each agent looks at when choosing a location that optimizes the agent's utility. If there is more money in a certain area, then there are more affluent people to spend that money on goods and services.

#### b. Residents-Per-Job slider

This refers to the number of places of employment created in the country. For every RESIDENTS-PER-JOB people, a new area of employment appears.

#### c. Max-Jobs slider

This refers to the possible number of organizations and types of work that a job seeker could find. For example, a Business Administration with specialization in Financial Management has more types of jobs and organizations. Whereas, a veterinarian has fewer possible jobs.

#### d. Death-Rate slider

There are rich people and poor people disappearing each time step. Disappearance is caused by factors such as death, emigration, etc.

#### e. Poor-Price-Priority slider

The priority of the poor people is only at the economical price of the cost of living, and they do not concern themselves with job locations. Poor people seek areas with low price, disregarding quality.

#### f. Rich-Quality-Priority slider

The priority of the rich people is only about quality, and they are not concerned with distance to employment. Rich people prefer areas with good quality, disregarding the price.

#### g. Poor-Per-Step slider

The under privileged who are entering the workforce each time step.

#### h. Rich-Per-Step slider

The rich entering the workforce each time step.

### *Methodology*

Access the NetLogo and its Model Library. Choose the Economic Disparity Netlogo model (Felsen & Wilensky, 2007). Click the SETUP button first, to set up the model. One job location is placed in the middle of the world, and several rich and poor people are spread out nearby. All land in the world has the same price and quality. The quality and price of the land inhabited, as well as nearby land is affected by the type of people who live there.

Click the GO button to start the simulation. To step through the simulation one "tick" at a time, use the GO-ONCE button. Set the Parameters at the following:

- 1.1.1 Number-of-Tests slider set at a maximum value of 30, any numerical value below 15 is low; above 15, high. Viewed as how many locations each agent prefers when choosing employment that optimizes the agent's utility.

- 1.1.2 Residents-Per-Job slider is the new place of employment; at 400 residents at a maximum value of 500, any numerical value below 250 is low; above 250, is high. Example: at 200 residents,
- 1.1.3 Max-Jobs slider at a value 15.
- 1.1.4 Death-Rate slider at five: There are both five rich people and five poor people disappearing each time step.
- 1.1.5 Poor-Price-Priority slider at one.
- 1.1.6 Rich-Quality-Priority slider is at one.
- 1.1.7 Poor-Per-Step slider at 12. Where the assumption is that 80% of the population of the Philippines is poor; then 80% of 15 (maximum value) is 12. This is the number of poor people entering the workforce each time step.
- 1.1.8 Rich-Per-Step slider at three: Where the assumption that 20% of the population of the Philippines is rich; then 20% of 15 (maximum value) is 3. This is the number of rich people entering the workforce each time step.

Create four scenarios from the Economic Disparity NetLogo model by varying the two factors: Factor A - the number of locations each job seeker looks at when choosing a workplace that optimizes the jobseeker's utility; and Factor B - the number of places of employment created in the country. Variations are Low at a value of 0 and High at a value of 1. The following scenarios are:

- 1.2 Factors A and B are Low;
- 1.3 Factor A is Low and Factor B is High;
- 1.4 Factor A is High and Factor B is Low; and
- 1.5 Factors A and B are High.

Simulate the scenario 10 times and at each time indicate the number of months (Ticks), the number of job seekers (Population), the number of destitute (Poor Population), and the number of rich job seekers (Rich Population). Solve for

the average of each of the four indicators.

Use the Two-way Analysis of Variance (ANOVA) to understand if there is an interaction between the two independent variables on the dependent variables. The independent variables include the locations each job seeker looks at when choosing a place that optimizes the job seeker's utility and the number of places of employment created in the country. The dependent variables are the rate of time new poor people new rich people enter into the world to job saturation; the number of job seekers, the number of poor, and the number of rich job seekers.

### *Results and Discussions*

The work location area is affected by variations in the two factors, Factor A being the number of areas each job seeker looks at when choosing a place that optimizes their utility and Factor B being the number of places of employment created in the country. Four scenarios are simulated by the model when the two factors are set at low and high levels to determine the time for a job location to become saturated.

In scenario A, as shown in Table 1, Factor A being the number of locations each job seeker looks at when choosing a location that optimizes the job seeker's utility and Factor B being the number of workplaces created in the country, are low. When the two factors are low, there are a fewer locations each job seeker looks at when choosing a location that will optimize the job seeker's utility; and there are fewer new workplaces being created, and it only takes 131 months (close to 11 years) for a maximum of 14 job sites to be saturated by a small number of job seekers. As the population of job seekers continues to grow, the model indicates that the number of job sites has reached its fullest at 14.

Table 1. Scenario A: When the number of locations each jobseeker at are Low and number of new places of employment are Low

Factor A NUMBER-OF-TESTS	Factor B RESIDENTS-PER-JOB	Ticks (1 tick = 1 month)	Popula-tion	Poor Popula-tion	Rich Popu-lation
0	0	26	210	192	18
0	0	117	845	829	16
0	0	169	1210	1193	17
0	0	78	575	556	19
0	0	91	665	647	18
0	0	182	1300	1284	16
0	0	143	1030	1011	19
0	0	39	300	283	17
0	0	130	935	920	15
0	0	65	480	465	15
Mean		131.18	945.45	928.27	17.18

Factor A: Number of locations each job seeker looks at when choosing a location that optimizes the jobseeker's utility.

Factor B: Number of new places of employment created.

In scenario B, as shown in Table 2, Factor A being the number of locations each job seeker looks at when choosing a location that optimizes the job seeker's utility is low and Factor B the number of places of employment created in the country is high. When there are fewer locations

Table 2. Scenario B: When the number of locations each jobseeker at are Low and number of new places of employment are High

Factor A NUMBER-OF-TESTS	Factor B RESIDENTS-PER-JOB	Ticks (1 tick = 1 month)	Popula-tion	Poor Popula-tion	Rich Population
0	1	403	2850	2831	19
0	1	247	1755	1739	16
0	1	352	2490	2474	16
0	1	273	1940	1921	19
0	1	429	3030	3013	17
0	1	287	2035	2019	16
0	1	390	2755	2740	15
0	1	377	2665	2649	16
0	1	339	2400	2383	17
0	1	299	2120	2103	17
Mean		339.60	2404.00	2387.20	16.80

Factor A: Number of locations each job seeker looks at when choosing a location that optimizes the jobseeker's utility.

Factor B: Number of new places of employment created.

considered every time they choose a location to optimize the job seeker's utility, but there are

more new places of employment created, it only takes 340 months (28 years) for a maximum of 14 jobsites to be saturated by a sizable population (2387) of jobseekers. Even when the population of job seekers continues to grow, the model indicates that the number of job sites has reached its fullest at 14. At saturation point, there will be no more available job sites for the growing population. This satiation devastatingly impacts the future of the poor population than the rich population.

In scenario C, as shown in Table 3, Factor A being the number of locations each job seeker looks at when choosing a location which optimizes the job seeker's utility is high and Factor B being the number of places of employment created in the country is low. Considering options with more locations in choosing a location, to optimize the job seeker's utility but with few new places of employment being created, it only takes 140 months (11 ½ years) for a maximum of 14 job sites to be saturated by a small population (755) of job seekers. Even when the population of job seekers continues to grow, the model predicts that the number of job sites has reached its fullest at

Table 3. Scenario C: When the number of locations each jobseeker at are High and number of new places of employment are Low

Factor A NUMBER-OF-TESTS	Factor B RESIDENTS-PER-JOB	Ticks (1 tick = 1 month)	Popula-tion	Poor Popula-tion	Rich Population
1	0	26	210	192	18
1	0	117	845	829	16
1	0	169	1210	1193	17
1	0	78	575	556	19
1	0	91	665	647	18
1	0	182	1300	1284	16
1	0	143	1030	1011	19
1	0	39	300	283	17
1	0	130	935	920	15
1	0	65	480	465	15
Mean		104.00	755.00	738.00	17.00

Factor A: Number of locations each job seeker looks at when choosing a location that optimizes the jobseeker's utility.

Factor B: Number of new places of employment created.

14. At saturation point, there will be no more available job sites for the growing population. This satiation devastatingly impacts the future of the poor population than affluent.

In scenario D, as shown in Table 4, the condition that Factor A, being the number of locations each job seeker looks at when choosing a location, optimizes the jobseeker’s utility and Factor B, being the number of places where employment in the country is high. When there are more locations that each job seeker looks in choosing a location, it optimizes the job seeker’s utility. With better places of employment created, it only takes 340 months (28 years) for a maximum of 14 job sites to be saturated by a large population (2387) of job seekers. Even when the population of job seekers continues to grow, the model indicates that the number of job sites has reached its fullest at 14.

Table 4. Scenario D: When the number of locations each job seeker at are High and number of new places of employment are High

Factor A NUMBER-OF-TESTS	Factor B RESIDENTS-PER-JOB	Ticks (1 tick = 1 month)	Population	Poor Population	Rich Population
1	1	403	2850	2831	19
1	1	247	1755	1739	16
1	1	352	2490	2474	16
1	1	273	1940	1921	19
1	1	429	3030	3013	17
1	1	287	2035	2019	16
1	1	390	2755	2740	15
1	1	377	2665	2649	16
1	1	339	2400	2383	17
1	1	299	2120	2103	17
Mean		339.60	2404.00	2387.20	16.80

Factor A: Number of locations each job seeker looks at when choosing a location that optimizes the jobseeker’s utility.  
 Factor B: Number of new places of employment created.

At closer investigation, as shown in Table 5 below, all four scenarios show common eventualities regardless of the two conditions, Factor A being the number of areas each job seeker looks at when choosing a place that optimizes the jobseeker’s utility and Factor

B being the number of places of employment created in the country is high. First, the simulation model shows that employment opportunities reach a saturation point when 14 job sites are created. Second, there will always be the larger population (98% to 99%) of destitute than the rich job seekers. In fact, there are only very few rich job seekers (1% to 2%) who will eventually not find jobs.

Table 5. Overall Summary for the Four Scenarios

Scenario		Saturation Rate	Population Size	Poor Population	Rich Population
A		FAST	SMALL	98%	2%
Factor A Low	Factor B Low*				
B		SLOW	LARGE	99%	1%
Factor A Low	Factor B High**				
C		FAST	SMALL	98%	2%
Factor A High	Factor B Low*				
D		SLOW	LARGE	99%	1%
Factor A High	Factor B High**				

However, scenarios A and C show that upon reaching the saturation point at 14 job sites, similar results indicate that only a small population of job seekers are provided with employment and that saturation rate is fast at 11 years. Common to both scenarios is Factor B, that is, the number of places of employment created in the country is low. When there are few new places of employment created regardless of few or many locations each job seeker looks at, it takes only 14 years to saturate opportunities resulting to fewer employed job seekers.

In the other two scenarios B and D, the saturation point is reached when a large population of jobseekers is provided with employment, and saturation rate is slow at 28 years. It is observed that common to both scenarios is Factor B, that is, the number of places of employment created is high. When there are many new places of employment created regardless of few or many locations each job seeker looks at, it takes a longer time,

28 years, to saturate employment opportunities even with a very large population employed job seekers.

Figure 1 shows the Philippine working age is an estimate of 65% of the total population and will increase at four percent (4%) to seven percent (7%) by 2040. There is an estimate of 10 million Filipinos who are either unemployed (three million) or underemployed (seven million) and also an expected increase of a million potential job seekers or entrants to the labor force. The government faces the challenge of job creation by 14.6 million jobs in the next five years. The number increased by an estimate of 60,000 of the 500,000 college graduates every year who will be unemployed. Another challenge is addressing poverty, the 21 million Filipinos who are informally employed. The informal workers comprise about 75 to 80 percent of total employment. Annually, an estimate of 650,000 potential entrants to the labor force, around half having high school degrees, do not have a choice but to find work in the low-skill and low pay informal sector.

	2015	2020	2025	2030	2035	2040
Total	102 965	111 785	120 225	128 110	135 301	141 670
0-14	32 682	33 834	34 383	34 386	34 012	33 360
15-24	19 303	19 995	21 107	22 086	22 650	22 773
25-54	39 391	43 855	47 843	51 862	55 527	58 767
55+	11 592	14 099	16 893	19 776	23 113	26 771

Source: Philippine Statistics Authority: Inter-Agency Working Group on Population Projections.

Figure 1. Philippines population projection by age group, 2015-2040 (000s).

Figure 2 shows the distribution of unemployment and underemployment rates in the Philippines by region. The highest underemployment rate is in Bicol Region while highest unemployment is in Cagayan Valley. Bicolmail (2015) states that there is 34.3 percent of the employed persons in Bicol who are still looking for additional jobs. The underemployment rate is also the proportion of employed wanting more hours of work to a total number of those employed. Job generation is created mostly (50%) in the services sector which includes transportation

and communication, trade, real estate, renting, financial, public administration and defense, among others.

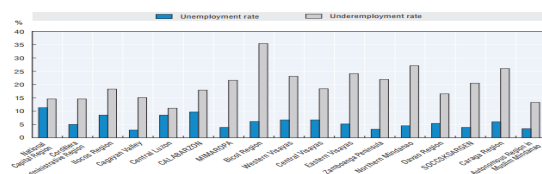
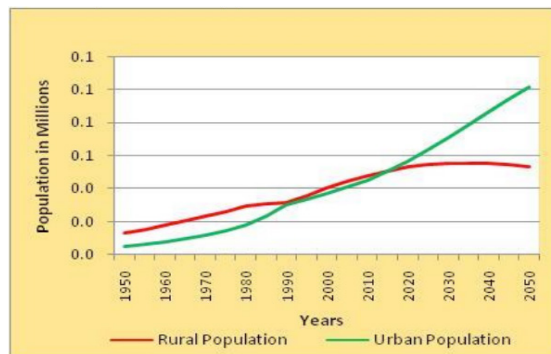


Figure 2. Philippine unemployment and underemployment rates by region.

As shown in Figure 3, only 25% of jobs are from agriculture such as crop production, fishery, forestry, and hunting, and another 25% in the industrial sector such as construction like manufacturing, mining and quarrying, and electricity, gas, and water. Overall, statistics show that Bicol with an Income Inequality Index of 0.4233 ranks 4th in poverty incidence and 1st in magnitude.

The Philippine government has intensified job creation but in concentrated territories thereby creating urban areas. Figure 4 shows the Philippines' urban transition indicating the increase in urban areas. Statistics shows that the extended Metro-Manila area ranks first and accounts 36 percent to 40 percent of the total urban population. An additional 10 percent to 15 percent of the urban population live in the next four largest metropolitan regions.



Source: United Nations. 2012. World Urbanization Prospects. New York

Figure 3. Urban transition in the Philippines.

These are Davao City and Metro Cebu, Metro Angeles and Zamboanga City. Since most of the potential entrants to the labor force are

poverty-stricken, the influx of informal settlers in the urban areas lead to environmental, health and socio-economical issues and concerns, more so that earnings are consistently lower and working hours longer in the informal sector.

Figure 4 indicates the Gini-coefficient on urban inequalities. Historically, Filipinos have sought a better quality of life through migration. In the early years, rural folk from the provinces moved to bigger cities for employment opportunities. In fact, three urban areas, namely, Quezon City, Pasay City, and Davao City are already above the Gini-coefficient of 0.4, the measure to be the International Alert Line. Nationwide, the poverty rate of the people living in substandard (slum or squatter) housing is doubled, around 40%, compared to people living under normal conditions (ADB, 2014).

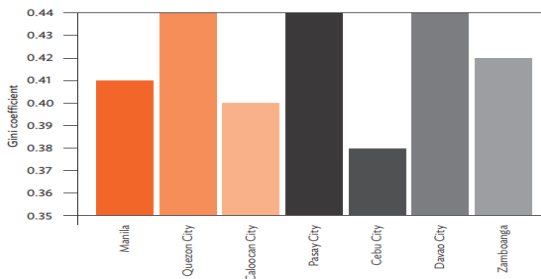


Figure 4. Intra-urban inequalities – Gini Coefficient.

Tables 6, 7, 8 and 9 present the findings of the paper which explored the interaction of the two independent variables on the four dependent variables using the two-way analysis of variance. The independent variables include the number of areas each job seeker looks at when choosing a place that optimizes the job seeker’s utility and the number of places of employment created in the country.

The dependent variables are the rate of time new poor people and new rich people enter into the world to job saturation (ticks); the number of job seekers (population), the number of poor job seekers (poor), and the number of rich job seekers (rich).

Table 6. Two-way ANOVA: Ticks versus Factor A, Factor B

Source	DF	SS	MS	F	P
Factor A	1	0	0	0.00	1.000
Factor B	1	555074	555074	169.69	0.000
Interaction	1	0	0	0.00	1.000
Error	36	117761	3271		
Total	39	672834			
S = 57.19 R-Sq = 82.50% R-Sq(adj) = 81.04%					

Table 7. Two-way ANOVA: Population versus Factor A, Factor B

Source	DF	SS	MS	F	P
Factor A	1	0	0	0.00	1.000
Factor B	1	27192010	27192010	169.76	0.000
Interaction	1	0	0	0.00	1.000
Error	36	5766380	160177		
Total	39	32958390			
S = 400.2 R-Sq = 82.50% R-Sq(adj) = 81.05%					

Table 8. Two-way ANOVA: Poor versus Factor A, Factor B

Source	DF	SS	MS	F	P
Factor A	1	0	0	0.00	1.000
Factor B	1	27198606	27198606	169.69	0.000
Interaction	1	0	0	0.00	1.000
Error	36	5770279	160286		
Total	39	32968886			
S = 400.4 R-Sq = 82.50% R-Sq(adj) = 81.04%					

Table 9. Two-way ANOVA: Rich versus Factor A, Factor B

Source	DF	SS	MS	F	P
Factor A	1	0.0	0.00000	0.00	1.000
Factor B	1	0.4	0.40000	0.20	0.656
Interaction	1	0.0	0.00000	0.00	1.000
Error	36	71.2	1.97778		
Total	39	71.6			
S = 1.406 R-Sq = 0.56% R-Sq(adj) = 0.00%					

The above tables show the results of the two-way analysis of variance. Factor A and Factor B indicate the two independent variables. The p-value for Factor A is 1.000 ( $p > 0.05$ ). It means that the differences in the ticks, population, poor population and rich population levels that each job seeker looks at when choosing a location that optimizes the jobseeker’s utility are not associated. On the contrary, Factor B has a p-value of 0.000 ( $p < 0.05$ ). It means that levels of Factor B, the number of places of employment created in the country, are associated with differences in the ticks, population, and poor population. The p-value for the interaction between Factor A and Factor B is 1.0000 ( $p > 0.05$ ). It indicates the relationship between

the number of locations each job seeker looks at when choosing a location and the number of places of employment created. Because the interaction effect between the two factors is not statistically significant results can interpret the main effects without considering the interaction effect. Only the number of places of employment created has an effect on the rate of time when new poor job seekers and new rich jobseekers enter into the world to job saturation.

### Conclusion

Using the conventional model addressing poverty alleviation and attaining inclusive growth, the paper finds that job creation and job generation address only unemployment but resulting in economic disparity. In fact, the model shows that the first few job sites created had a dense population and these became the urban areas inhabited by informal settlers. Using the Economic Disparity NetLogo, job generation creating urban areas resulted to further and larger challenge of urban poverty and its related problems. In other words, when it reaches saturation point, overcrowding in the urban job locations mostly by the underprivileged become aggravated creating urban slum settings.

Against the backdrop of both opportunities and challenges for the Philippines economy, a key policy challenge remains to sustain inclusive growth through decent and productive employment. The paper recommends then that the Philippine government explores other approaches in poverty alleviation. Urban slums have now become a long-faced concern for policymakers. In some countries, areas identified with urban poverty has already transformed into economic and trade zones capitalizing on taking advantage of the large urban population. Although most are destitute or the urban poor, a strategic human capital development can be planned and implemented to transform the informal settler-workforce into more capable labor force with competence acceptable for the formal sector employment. Other concerns such as the improvement of the quality of life by better delivery of public services have to be answered. Therefore, local government units and its service delivery agencies likewise need to be provided

with strategic training and capacity building.

The population of the Philippines also needs to be addressed, where the majority of graduates are planning to settle in the urban areas. Population control has been attempted by every Philippine president but has failed. Therefore, shift to countryside productivity is highly recommended.

The Department of Education (DepEd), Commission on Higher Education (CHED) and Technical Education and Skills Development Authority (TESDA) can provide competencies that will improve the way of thinking of the graduates when they graduate. Since the predicted rise of unemployment still persists even with the job creation/job generation interventions by the government, another model of job generation can be generated to address economic disparity and poverty alleviation. Graduates will then acquire the perspective of obtaining a better quality of life.

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