Population growth and asian developing countries

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Especially in Asian Developing countries, where the population growth is developing more and more drastically, the economic growth therefore also changes critically over periods. Up to now, the debates about whether population growth is beneficial or detrimental to economic growth still have been discussed. As a result, It Is significant to take Into account the effects of population growth on economic growth in these countries, which focus on per-capita term specifically. We would like to first define some main factors, which lead to the increase in population growth, then analyze the positive and negative effects on economic growth.

Moreover, we will interpret the result of the regression test to find out the exactly answer of the question whether the growth rate of population can Increase or decrease the economic growth In Aslant Developing countries. Lastly, we will make predictions about the future trend In population growth In these countries based on some given data. The paper is based on the theoretical tools of Macroeconomic Theory and Statistics for Business courses. We will apply some existing models and set up a regression test on Excel to clarify the hypotheses. Some practical data and examples will also be used to explain the ideas.

Future population trends in Asian developing Conclusion -? References . 16 3. 2. 2 26 31 32 List of Figures Figure 1. Life expectancy of birth in Asian Developing 8 Figure 2. The relationship between demand and supply -? 18 Figure 3. China’s Ratio of Working-Age to Non-Working-Age Population 20 Figure 4. World population 1800 – List of Tables Table 1. Fertility in the Developing World -? 27 4 1. Introduction 1. 1 . Problem discussion: In the early of twenty-first century, the world population had fluctuated around 6

billion, in which developing countries contributed to 80% of the total amount and costly occur in Asian countries.

The fact is population growth and economic growth always has a close relationship. Over periods, the arguments about positive and negative effects of population on economic development are still complicated problems for most of the economists. One of these economists is Thomas R Malthusian. In his model (1826), he stated that the population growth can reduce the output per capita because population increases at a geometrical rate while production rises at an arithmetic rate so that output growth rate can not keep the same pace.

Another famous economist is Robber M. Solos (1956). Unlike Malthusian, he focused on the term “ population growth rate” instead of the “ population level”. He stated that an increase in the population growth rate can decline the capital per worker as well as the steady-state output per worker. As a result, higher population growth can bring the detriment to the productivity and economic growth. However, there are also some optimist views stated that population growth can make a positive impact on economic growth. An example is Lullaby (1998).

He believed that larger population can lead to “ technology pushed” and “ demand pulled” which means higher population growth an increase the needs for goods and boost the technological development. Therefore, it can increase the labor productivity, income per capita and living conditions. This paper focuses on analyzing the impact of population growth on economic growth in Asian Developing countries where currently have one of the most

critical of the impacts, we can conclude that whether an increase in population growth rate can lead to a benefit or detriment to the economic growth in these countries.

Outline of the paper: This thesis is divided into four main sections. The first section is used to describe the woo significant factors which directly affect to the population growth – mortality and fertility. This section also explains the interaction between these two elements. Section 2 will be used to analyze and explain the positive and negative effects of population growth on economic growth. This section will be divided into two parts: o Part 1 : Describe the positive effects through analyzing the “ Economies of Scale” phenomenon of population growth as well as the acceleration of technological progress. Part 2: Describe the negative effects by defining the Solos model then apply it to explain some negative impacts. Section 3 will focus on interpreting the result of the Linear Regression tests with some given data of 8 Asian Developing countries from 1965 to 2010. The result in this section will help us decide whether higher population growth can make positive or negative effects on economic growth in these countries. Section 4 will present a prediction of the population trend in future and how it can affect the economic growth in Asian Developing countries. Aim of the research: This thesis is focused on answering the fundamental question “ Are the effects of population growth on economic growth in Asian Developing countries positive or active? ” In more details, we need to find out how population growth rate affects to GAP per capita in these countries and in which direction (positive or negative). Limitations: The first limitation occurred when we used the Solos model to analyze the negative effects of

population growth on economic growth. This model is built on some not-soothe assumptions. First, all countries are supposed to have no kind of interrelation or in a closed economy situation.

Then, the technological progress is considered an assumptions but may succeed if the final results are not sensitive to the amplifications used. ” Secondly, due to the multiple regression test, collecting data becomes the most time consuming period. However, there are some data are not available before 1980 period. Thus, it makes our regression test become not so tight. Thirdly, due to the Solos model, the investment rate has a vast effect on the economic growth. However, because of the shortage of data and times, we cannot include the investment rate data in our regression model test.

Moreover, we also assume that other variables do not affect much on the result of our regression test. 7 Literature search and methodology: In order to analyze the impact of population growth on economic growth in Asian Developing countries, we searched some literatures, published works and textbook concerning population growth. We also used internet sources and review several available works relevant to this problem. This thesis bases on both theoretical and numerical data concerning population growth and economic growth.

We will basically first search and review all the literatures then collect the necessary data from internet sources. In this paper, we also use Microsoft Excel to do the Multiple Regression tests for 8 Asian Developing Mounties from 1965 to 2010 so that we can find out whether higher population growth

can bring benefit or detriment to the economy in these countries. 2. Determinants of population growth 2. 1 . Mortality transition Over two centuries, from 18th century to 20th century, the level of mortality has changed dramatically in Asian countries.

The demographers use life expectancy of birth, which is the average number of years that newborn baby can be expected to live, as a mean to measure the mortality level. Generally, the life expectancy of birth has increased rapidly from the beginning of 18th century. Figure 1 – The life expectancy of birth in Asian Developing countries The data was collected from 1960 to 2000 from workloads. Org, as can be seen on the 1. 5 times, from 48. 17 up to 68. 75. There are two main reasons that make the big change in mortality level. Firstly, the living standard has improved in overall; include housing and other necessities like food and water.

When people have a higher level of income, they will enjoy a better nutrition and thus have more resistant to disease. For instance, in 1960, the GAP/capita in China was only around 92 USED and the life expectancy was 46. ; ten years after, in 1970, their newborn child’s life expectancy moved up to 61. 97 (nearly 1. 3 times) and their level of income Jumped to 1 1 1. 62 USED (also nearly 1. 3 times). The second reason is the import of new technology from Western countries; include medical treatment, drainage system, vaccines protecting people from dangerous epidemics like smallpox, measles, etc…

This also explains why the life expectancy in Asian countries is increased much faster than Western countries ones. 9 2. 2. Fertility transition In order

to measure fertility, demographers use the total fertility rate (TFH) which is he number of children that one woman can give birth through her lifetime. In general, the total fertility rate in Asian developing countries has declined dramatically over the past three decades. According to the data of United Nations Population Division, the average TFH declined from 6. 27 in 1965 to 2. 47 in 2009 (decreased more than 2. 5 times).

There are many factors which contribute to the decrease in birth rate in Asian developing countries. In some countries, such as China and Vietnam, the government has applied intensive family planning program to control birth rate. But in most of Mounties, socioeconomic is a key factor of the situation. Delaying marriages, rising cost of health caring and education for children are some main factors in socio- economic case. Moreover, the income level, which increases vastly in some middle- income countries like China and Thailand, rises the opportunity cost of time spending for rearing children.

Last but not least, education, especially female education, is expected to be strongly related to the fertility rate. Highly educated women have preferences for well-educated children, so it makes more difficult to have large-size implies because of the children-rearing cost. Along with the tremendous development in economy, the education level has also increased in order to satisfy the need of the new emerging economy. Due to studies conducted by Cochrane(1983), he suggested that the education level has a negative impact on fertility rate. 2. The Net rate of reproduction is considered a good mean to measure the interaction among fertility and mortality. The Net rate of reproduction (NOR) is defined as the number of 10

daughters that each girl who is born can be expected to give birth to (David N. Well, 2008). The NOR is calculated by using the below formulation: NOR=; X where is the probability that the newborn child is a girl F (I): specific fertility rate at age I. 0 (I): probability that a person will be alive at age I As we can see in the formula above, both birth rate and mortality rate play an important role to evaluate the value of NOR.

Most of the countries in our sample experience the increase in Life expectancy; however, according to United Nations Population Division, the data of NOR collected from 1970-2005 reduced all the time. The main reason is that the second variable, total fertility rate declined at a faster ate. Take India for an example, in the period of 45 years, from 1955-2000, despite of the increasing in life expectancy (from 42. 6 to 62. 1), the NOR slightly decreased from 1. 75 to 1. 43 since TFH faced a dramatic downward, from 5. 92% to 3. 45%. Moreover, the " decreasing infant mortality rate" also has a strong effect on fertility rate.

Each family has its own desired fertility. If the infant death rate equal to h and the desired fertility equal to two, the family have to give birth to four children in order to ensure that two of four children will survive in future. Because the infant death rate decreases sharply overtime; take Indonesia for example, according to the United Nations Population Division, the infant death rate decrease from 201/1000 in sass to 27/1000 in sass; and the desired fertility seems to be fixed or decreased, the total fertility rate will decrease. 11 3.

Positive and Negative effects between Population growth and Economic Growth 3. 1 Positive effects 3. 1. 1 The “ Economies of Scale” phenomenon of population growth Despite of the Malthusian’ theory of diminishing return when it comes to scarce Sunset (1956), Booster(1965) and Simon (1981), believed that population growth can ally help the nation economy to turn from ineffective economy into “ economies of scale” state. According to Kindlier (1977), economies of scale are an important factor to increase the productivity (increase in output per unit of labor) of one nation.

A country, which has a rapid population growth, can suffer many burdens, such as capital dilution, shortage of necessity resources and the casualty could lead the whole population to poverty, famine and starvation. However, there are three arguments supported for the idea that population growth can boost the country economy by “ economies of scale” phenomenon. Firstly, a nation, which has a rapid population growth rate, means that its population size will develop with a quicker rate.

The bigger the population size is, the larger the market size becomes. In order to meet the product demand of the large-size market, bigger and more effective as well as longer performance period manufacturing plants are required to develop (Simon 1994). Therefore, the producing cost and setup cost per one output have tendency to reduce. 12 Secondly, the large-scale of population not only have a large size market but also possess an impressive number of labors.

Because of the availability of labor force, it s possible for firms to divide their labor into particular division of labor to do specific tasks. An excellent

example of specialization is car assembly line in which each division Just takes responsibility of installing only one part of the car such as engine or car wheels. According to Adam Smith, “ division of labor has caused a greater increase in production than any other factor. This diversification is greatest for nations with more industry and improvement, and is responsible for “ universal opulence” in those countries”.

Moreover, through specialization, working skill of labor Orca is likely to improve more quickly with learning-by-doing. Since a large size of population demands a tremendous number of products, these workers have more chances to improve their working skill. As a result, the average time spending for producing one unit of output have tendency to decrease more quickly than in smaller market-size. Correlating with saving producing time, the cost per one product is also deducted and firm is more efficient through specialization.

Finally, the rapid population growth rate could cause a positive effect on communication and transportation. Transportation plays an important role in economic development. A good transportation system can help reduce transportation cost and travel time. Along with high population growth rate, the increase in population density is inevitable. A dense population is likely to pressure the government to develop more in transportation system such as railroad, highways and road.

Take China as an example, according to United Nations Population Division, in 1985, its population density was 110 people/km and the total amount of railroad was 52, 000 km while in 2010, the total length of railroad is 91 ,

OHO km (increase 75%) and 13 Transportation improvement is surely a general trend for every economic velveteen, but it is not deniable to state that the population density has a strong impact on number of construction of transportation.

As Julian L. Simon stated in " The Ultimate Resource", " population growth clearly leads to an improved transportation system, which in turn stimulates economic development". 3. 1. 2 Acceleration of technological progress The Industrial Revolution started at the beginning of 18th century and ended at the end of 19th century. This is the period when Malthusian " population growth" model was broken down and technology proved its own importance for the economic growth.

In Caboodles model, y = Chalk-a; where y is output per worker, A is productivity and h is human capital per worker; technological progress, which increase the value of parameter A, eventually lead to the higher output per worker with the same number of input. According to early neoclassical model of Solos (1956), the role of technological change is crucial and he emphasized that it is even more important than the accumulation of capital.

There are some theories supported for positive effect of population growth on technological growth, two most well known theories belonged to Booster and Simon. Among in the optimistic economists in " population growth" field, Booster is quite famous as an anti-Malthusian economist. In her theory, she argued that when the population faces a critical event like shortage of food or other necessity goods, people would find a way to overcome the situation

by increasing workforces, using new method of producing or inventing new machines, tools, etc.

In Simon-Statesman Economic growth model, Simon also shows the idea that the greater the total population, the greater the level of technological growth which eventually lead to yield greater capita income. A country, which has a higher population growth rate, implies that there is a rapid increase in school-age population. Instead of investing in other essential industrials to increase the overall capital accumulation, the government has to spend more public spending in schooling and educational facilities.

The pressure created by massy number of school-age population also retards the general education level of the nation. However, in long run, huge investment in education in present can result in the accumulation of human capital, which is a special stock of competence, knowledge, personalities as well as the ability to produce economic value. Human capital has two effects on economic development. First, human capital can be used as a productive factor like other capitals like machine, vehicles etc. Second, human positively to the productivity.

Hence, greater population growth tends to raise the level of technology growth. The population growth enlarges the size of labor force, so, the average wage rate, therefore, is pushed down. In developing countries, low wage rate is considered an important factor in the progress of industrialization and modernization, which are loosely related to the wealth of the nation. Moreover, instead of spending a huge amount of money to pay

the labor, firm can invest more in R&D sector, which finally result in the sufficient development of new technology that leads to higher productivity.