There are different explanations of why certain countries are developed and other countries are still developing. Review three bodies of work, namely, the institutional theory, the geography theory and the growth theory, and evaluate their strengths and weaknesses in light of empirical evidence. Which theory would you endorse?

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In 21th century, some countries such as Western Europe, Canada and United States are more developed with high per capita GDP, but some countries are still developing like Latin America and Africa. The main reasons of different development levels can be explained by geography theory, institutional theory and growth theory. This essay will review and evaluate the strengths and weaknesses of those theories, in order to figure out which theory is more practical in explaining the long run development trend.

The first three sections will address the reviews and evaluations of the geography theory, the institutional theory and the growth theory separately. The fourth and fifth section will be the cross-model comparison and the conclusion.

I: geography theory

Geography theory is the theory that using the geographical differences to explain the growth and development. (Gallup et al., 1999) Climate and the land features are the main components of the theory. More specifically, they can be one of the key determinants of the economic productivity thus affect both short run and long run growth.

First of all, climate can have direct impacts on agricultural productivities. In general, 1ithhold11 climate conditions can improve the land productivity which leads to higher agricultural productivity thus faster growth and development. According to the study by Master and McMillan (2000), the days of winter frost lead to different economic effects. As the pests and parasites bring negative effects on agriculture, the seasonal frost could kill the pests and parasites and raise the agricultural productivity. The frostless countries especially

for the tropical regions had 1% slower annual growth during 1960 to 1990 than the countries with frost.

More than that, the different climate conditions cause different disease patterns. Take Malaria as a typical example, there is a negative correlation between malaria and economic growth. The distribution and intensity of Malaria are depending on ecological conditions because of the malaria mosquito vectors. (Gallup, Sachs and Mellinger, 1999) The climate characteristics tropical and subtropical zones are hot and humid which is 2ithhold22 for the malaria vectors to spread the disease. For those countries with intense malaria, they suffered from 1.3% less growth per person annually from 1950 to 1990. (Gallup & Sachs, 2000) This shows a negative relationship between malaria and economic growth. There are some potential negative impacts on economic growth which caused by malaria. For example, malaria might reduce the incentive for foreign direct investment and tourism. Also, the investors and tourists might stay away from those countries until they have improvements.

Next, the locations of the countries could have enormous effects on income growth. The factor of location can be divided into coastal area and hinterland. The coastal areas have better access to sea than the hinterland. The closer distance to the sea means that the costs of using sea transport are relatively lower than the regions located at the hinterland. Gallup, Sachs and Mellinger (1999) proved that the transport costs could have a large influence on growth theoretically by modified AK model. It implies that when the transport cost of hinterland is higher than the transport costs of the coastal regions by 5%. The coastal regions have 49% higher growth rate than the hinterland. In reality, the coastal regions have geographical advantages to support their international and interregional trade and communication. Therefore, coastal regions can achieve greater economic growth than hinterland. (Gallup, Sachs and Mellinger, 1999)

Evaluation:

The geography theory is strong in explaining the early stage of the economic development. For example, the 2ithhold22 geographical factors lead Europe and United States to have the rapid growth in the early stage. Europe is located at the non-tropical region with good access

to the sea. The moderate climate condition and coastal location provide high agricultural productivity and the effective channels for international trade initially. For the United States, the high proportion of coastal population and temperate zone location are 3ithhold33 for development. (Gallup, Sachs and Mellinger, 1999) They are the richest regions with the most rapid growth in the past.

On the other hand, it can explain why the tropical regions like Sub-Saharan Africa had the slowest growth in the past accurately. It is because of the geographical disadvantages. (Bloom et al., 1998) Most of the population was concentrated at hinterland and landlocked regions and only a small portion in the coastal region about 19%. (Gallup, Sachs and Mellinger, 1999)The long distance to the core market in Europe from their internal market lead to high transportation costs, the costs of sea transport are higher thus influence the efficiency of international trade and communication. In addition to the climate condition, the hot and humid climate leads to high malaria intensity and cause low agricultural productivity. Therefore, the economic growth of tropical regions was suffered from 3ithhold333e geographical factors.

However, this approach might not able to explain the exceptional cases independently because some of the relevant variables have been neglected by the model. Korea and Hong Kong are the typical exceptional examples in illustrating the weaknesses of geography theory. (Gallup, Sachs and Mellinger, 1999) North Korea and South Korea have temperate climate with good access to the sea which those factors are 3ithhold33 for fast economic growth. Additionally, North Korea has more natural resources and better geographical location than South Korea. The similar geographical conditions should achieve the similar result of economic outcome theoretically. After the economic development from1950 to 200, the income level in South Korea is about 16 folds than North Korea in 2000. (Acemoglu, Johnson and Robinson, 2002)

For the example of Hong Kong, it is located at tropical area that is 3ithhold333e for agriculture productivity. (Gallup, Sachs and Mellinger, 1999) It should be suffered from slow economic growth, but it is a developed city now. The growth trends for those exceptional

cases are not consistent to the theory. The long term divergence of economic growth could not explain by geography theory solely. (Acemoglu, Johnson and Robinson, 2002)

II: Institutional theory

Institution refers to the rules or structures in a society which constraint and shape human behaviors. (North, 1990) Institutions are determined by endogenous variables within the economy such as the collective choices, political power of the society and geographical factors. The institution theory implies differences in institution cause different long-run comparative growth. (Acemoglu, Johnson and Robinson, 2004)

Institution theory can be divided into three parts, they are economic, culture and political. Economic institution plays a crucial role in determining the economic incentive, thus shapes economic outcomes. For example, the secure of property right is the most direct way to ensure the efficient use of resources. (Acemoglu, Johnson and Robinson, 2004) The efficient allocation of resource can achieve highest economic outcome which leads to rapid economic growth. For the political institution, it determines the distribution of political power and the resource allocation. Political power would directly affect the growth and development routes of an economy. Because the group with greater political power can choose the set of 4ithhold44 economic institutions for themselves no matter they can achieve the greatest economic growth or not. In culture aspect, religions and beliefs are the typical examples that might cause a difference in growth for an economy. For example, the protectant encourages people to save more, this might lead to higher potential economic growth.(Acemoglu, Johnson and Robinson, 2005)

The First Great Divergence in Europe during the Middle Age is a typical example to illustrate the mechanisms of institution theory. The institution approach can also explain the growth and income divergence between Western Europe and Asia and Eastern Europe. After 1500, the urbanization level In Western Europe experienced faster growth than Asia and Eastern Europe.. The fundamental institutional change is the main cause of economic growth in Western Europe. Take Britain as an example, it was not ruled by absolutist initial political institution at that time. Therefore, institutional reform is more likely to take place earlier

than the countries with absolutist regimes such as Spain and France. The political power shifted from monarchy to merchants which lead to reform of economic institution. Importantly, the reform removed the barriers to enter the profitable trade businesses and protected the property rights thus the merchants had higher incentive to invest in different growth opportunities. (Acemoglu, Johnson and Robinson, 2004). As they invested more, the greater returns from investment thus leads to sustained economic growth.

Evaluation:

Institution theory is good at predict and explain the divergence in the long run development trend. In general, the countries with "good" institution usually have the better economic development than other countries. (Alesina and Perotti,1995) In addition, there is strong positive correlation between property right and economic performance. (Lorenzo,2013) It can be demonstrated by International Property Right Index (IPRI). The average national GDP per capita of top quintile IPRI nations is $38,288, and the fifth quintile is $5,545. Also, the nations with high IPRI are the most developed countries such as Finland, New Zealand, Sweden and Norway. Those countries have developed secure property right for a long time, so the long run growth and development are foreseeable.

Moreover, institution theory can compensate the weaknesses of geography theory in explaining the growth pattern. The different economic performance of North Korea and South Korea with almost identical geographical features can be explained by institution differences. (Acemoglu, Johnson and Robinson, 2004) After 1950, North Korea followed the Soviet socialism which focuses on eliminating the private property right system of land and capital. Also, the political power was concentrated on the leader which concerned about their interest rather than population benefits. At the same time, South Korea adopted an opposite approach of the North which is
maintaining the property right system and fair access to economic resources. (Acemoglu, Johnson and Robinson, 2004) As a result, the communist North Korea is one of the poorest and less developed countries while market-oriented South Korea is one of the most developed countries now.

In addition, the reversal of growth patterns of some countries can only be explained by institutional approach. The European colonialism changed the economic institutions in some countries. Thus, the different economic institutions contributed remarkable impacts on those countries. (Acemoglu, Johnson and Robinson, 2000) The institutions in European colonization can be classified in two categories, extractive and progressive institutions. The extractive institution discourages economic growth but progressive institution does. The European nations were likely to introduce extractive institution on the relatively rich regions and place with high mortality rate. The most extreme extraction was Belgium in the Congo. The tax rates on Africans Belgian Congo are about 60% of the personal income during 1920 to 1930. The extractive institutions are destructive to economic progress and hinder economic development. (Acemoglu, Johnson and Robinson, 2000)

In contrast, the European nation set up progressive institutions in North America, New Zealand and Australia thus boosted the growth for them. Because they are the majority of the population in those countries, it provided a strong incentive for them to introduce progressive institution in order to protect their property rights. (Acemoglu, Johnson and Robinson, 2000)

Overall, the extractive institution contributes negative effects on economic growth, but progressive institution provides incentive for economic development. Therefore, the different long run economic outcomes can be explained by different institution.

However, the institution hypothesis itself might not able to interpret the initial institution of an economy. The choice of the institution is determined by some endogenous conditions like political, historical and geographical factors which are not clearly included by the model. In addition, it is hard to identify the relevant variables that would lead to change in the institution. Therefore, it is difficult to predict the starting period of the developing countries to reach fast economic growth and evolve to developed countries in the long run.

IV: cross-model comparisons

In my opinion, the institutional theory would be most practical and applicable theory in explaining the differences in the long run development.

First, the importance of geographical factors to determine growth is lower than institutional factors under the current situation. The geographical conditions of the countries mainly decide the early stage of economic development. After the industrialization and technological improvement, the significance of geographical factors has been decreased. For example, the landlocked countries can use air transport to overcome the negative effects from low accessibility to sea. However, the economic incentive from secure property right and stable political institution would have little impact by the rapid changing environment. In certain aspects, the changing conditions could amplify the positive economic effects from institutional factors. Therefore, the significance of the institutional theory is greater than the geography theory at this stage.

Secondly, geography theory asserted 7ithhold77 geographical conditions usually bring positive economic outcomes. This assertion requires holding other factors constant, even the factors are relevant to the economic growth analysis such as institutional factors. Therefore, the explanatory power of geography hypothesis would be limited by those constraints. In contrast, the institutional theory can still function properly while including the geographical factors to explain economic growth. The divergence of development between North and South Korea is one of the classical examples to illustrate this.

The nature of growth theory and institutional theory is not the same. For the growth theory, the sources of growth like innovation, capital accumulation and technological externalities are growth, but not the origins of growth. It suggests "how to growth" and "What are the mechanisms of factor accumulation". On the contrary, institution provided the causes of growth, and they are more likely to be the fundamental explanation of comparative growth. (Acemoglu, Johnson and Robinson, 2004) The growth theory is more descriptive on growth, but the institutional theory is more focus on the explanation of the causes. Thus, institutional theory has more direct and clearer expression to point out the explanations on different long run development than growth theory.

Additionally, the prediction of long run conditional convergence in growth theory can also be derived by institutional theory. When the countries are adopting the sam

demonstrate the prediction in the long run growth of the countries. Besides, it is supported by a wide range of empirical evidence and previous studies. (Barro, Mankiw & Sala-i-Martin, 1995) The accurate long run convergence hypothesis prediction can be derived by growth theory instead of geography and institutional theories directly. The growth of OECD countries is a strong example to demonstrate the long run convergence of the growth model. The OECD had experienced rapid growth in the past 50years. For example, the dispersion of GDP across European regions has been decreased from 0.29 to 0.19 during 1950 to 1985. (Barro, 1991) Besides, according to (Sala-i-martin, 1994), the dispersion of the log of per capita personal income for 48 U.S. states has been declined from 0.54 in 1880 to 0.19 in 1988. Those economies are converging at about 2% annually. The above results can show the trend of long run convergence in income within and across countries convergence.

The growth model has provided the concept of sources of growth. (Romer, 1989) The exogenous and endogenous variables are both covered by the growth theory. Therefore, the more detailed explanations and predictions can be derived by the growth theory. Under the globalization trend, the importance of technology towards growth is increasing. The technology improvement might reduce the negative impacts on growth by geographical disadvantages. For example, the generalization of air transport has significantly reduced the geographical advantage of access to sea because sea transport is not the only efficient way to promote international trade. Therefore, the growth theory is more applicable than geography theory in certain extents.

Because the growth model can mainly express the growth in terms of GDP per capita, this might not able to account for the development level in a broad sense. For example, the development components like living environment, general education level and the income inequality might not be reflected by the growth model.
Nevertheless, the magnitude of the variables is uncertain on the growth model because they could be easily altered by some external forces such as the government intervention and business cycle. (Dinopoulos, 2006) Thus, the long run growth predictions require adjustments when there are some external changes. Comparing to the geography and institutional theories, the growth theory has more constraints on its growth analysis.

III: the growth theory

The growth model is one of the famous modern growth models in explaining long run development of the countries. It can be divided into two sub-models, exogenous or endogenous growth model.

The Solow model (Solow, 1956) is the model which based on the exogenous changes in the saving rate and population growth rate to determine the long run equilibrium. This model follows the assumptions of decreasing returns to scale in the production of per capita GDP and the growth factors are exogenous. Under the steady state equilibrium, the GDP and population will grow at the same rate. More importantly, it predicts that the convergence of income will necessary emerge in the long run. This implies that the poor regions and countries will growth faster than the rich countries thus close up the growth differences. This is known as conditional convergence and unconditional convergence. The conditional convergence has been supported by a wide range of empirical examples, but the unconditional convergence had been refuted by the empirical evidence. (Barro, 1991).

On the other hand, the endogenous growth model is based on the endogenous variables to explain the long run growth. The sources of growth are technical progress, network effect and returns to aggregate capital stock. Assuming the diminishing returns of physical capital and increasing returns of human capital, the above sources of growth could generate sustained economic growth endogenously. (Romer, 1986) Moreover, the technological change is the core of economic growth as it generates continued capital accumulation. (Romer, 1989) Assuming the nature of technological changes cannot be perfectly patented, the creation and changes of new technologies by one firm tends to have positive external effect on the production of other similar firms. This will increase the return of the production as the production function is positively correlated to stock of knowledge and technology. Therefore, it could increase the marginal product of the whole industry. (Romer, 1994) The other sources of growth like spillover effect and network effect are followed by the similar mechanism. In general, the endogenous growth model has suggested the same prediction as the neoclassical theory in the long run growth convergence by endogenous factors.

Evaluation:

Although the growth model is simple, it is a useful starting point to 9ithhol the growth of the economies. (Solow, 1956) It conveys the idea of growth by mathematical expressions.

Therefore, it can derive testable implications and easy to economic and political institution, the growth rate should be the same in the long run. The only small difference of income in the long run should be caused by the initial productivity differences. The long run convergence of growth between OECD countries can be explained by the similar economic and political institution in those countries. Conversely, the countries adopted different institutions should cause divergence in the long run. The long run outcomes of the growth model can also be predicted by institutional theory similarly.

From the above cross-model comparisons, the institutional theory can make the same conclusion as geography and growth model predicted in the long run. However, those models might not possible to derive the same useful conclusions as institutional theory. As a result, the institutional theory is more applicable in current and future stages of economic development.

V: Conclusion:

This essay has assessed three different types of development theories by finding out their strengths and weaknesses. Afterwards, the cross-model comparisons indicated that the overall performance of the institutional theory is better than the others. The next step of the research on institutional theory is to focus on "how to improve its weaknesses" and "how to enrich its theoretical framework" in order to explain further about future development trend.

Bibliography:

Alesina, A. & Perotti, R. (1995). Income Distribution, Political Instability and Investment. In European Economic Review,40. Retrieved December 4, 2013 from https://files.nyu.edu/rf2/public/Teaching/alesinaperotti_EER96_incomedistrpoliticinstability.pdf

Acemoglu, D., Johnson, S. & Robinson, J. (2004). Institutions as the Fundamental Cause of Long-Run Growth. In NBER Working Paper,10481. Retrieved November 30, 2013 from http://www.nber.org/papers/w10481

Acemoglu, D. A, Johnson, S. & Robinson, J. (2002). Reversal of Fortune:Geography and institutions in the making of the modern world income distribution. The quarterly Journal of Economics, 117 (4), Retrieved December 2, 2013 from http://economics.mit.edu/files/4127

Acemoglu, D. A, Johnson, S. & Robinson, J. (2005). The Rise of Europe: Atlantic Trade, Institutional Change, and Economic Growth. In The American Economic Rewiew,95(3). Retrieved December 1, 2013 from http://economics.mit.edu/files/4466

Acemoglu, D., Johnson, S. & Ribinson, J. A. (2000). The colonial orgins of comparative development:An empirical investigation. NBER Working paper, 7771 . Retrieved December 5, 2013 from http://www.nber.org/papers/w7771

Acemoglu, D. A, Johnson, S., Robinson, J. &Thaicharoen, Y. (2002). Institution causes, macroeconomic stmptoms:Volatiliy, crises and growth. NBER Working paper, 9124 . Retrieved December 1, 2013 from http://www.nber.org/papers/w9124.pdf

Barro, R. J., Mankiw, N. G. & Sala-i-Martin, X. (1995). Capital Mobility in Neoclassical Model of Growth. In NBER Working Paper,4206. Retrieved December 6, 2013 from http://www.nber.org/papers/w4206

Barro, R. J. (1991). ECONOMIC GROWTH IN A CROSS SECTION. I Quarterly Journal of Economics,106(2). Retrieved December 5, 2013 from http://qje.oxfordjournals.org/content/106/2/407.full.pdf

Bloom, D. E., Sachs, J. D., Collier, P. & Udry,C. (1998). Geography, Demography, and Economic Growth in Africa. In Brookings Papers on Economic Activity,1998 Retrieved November 29, 2013 from http://www.brookings.edu/~/media/Projects/BPEA/1998%202/1998b_bpea_bloom_sachs_collier_udry.PDF

Dinopoulos, E. (2006). Growth in Open Economies, Schumpeterian Models . Retrieved December 6, 2013 from http://bear.warrington.ufl.edu/dinopoulos/PDF/SchumperianGrowthInOpenEconomie s.pdf

Fine, B. (2000). Endogenous growth theory: a critical assessment, InCambridge Journal of Economics,2000(24).   Retrieved   December   9,   2013   from http://cje.oxfordjournals.org/content/24/2/245.full.pdf

Galor, O. (1996). Convergence? Inferences from Theoretical Models, In The Economic Journal,106(437). Retrieved December 7, 2013 from http://www.jstor.org/stable/2235378

Gallup, J. L. & Sachs, J. D. (2000). The Economic Burden of Malaria. In CID Working paper,52. Retrieved   November   26,   2013   from http://www.earth.columbia.edu/sitefiles/file/about/director/pubs/AmJournTropMedHy g_012001.pdf

Gallup, J. L., Sachs, J. D. & Mellinger, A. D. (1998). Geography and Economic Development. In NBER   Working   paper,6849.   Retrieved   November   29,   2013   from http://www.nber.org/papers/w6849

Grossman, G. M. & Helpman, E. (1994). Endogenous Innovation in the Theory of Growth, In The   Journal   of   Economic   Perspectives,8(1).   Retrieved   December   8,   2013   from http://www.fadep.org/documentosfadep_archivos/D-26_ENDOGENOUS_INNOVATI ON_THEORY_GROWTH.pdf

Liberto, A. D. (2005). CONVERGENCE AND DIVERGENCE IN NEOCLASSICAL GROWTH MODELS WITH HUMAN CAPITAL. In CUEC Working paper,08. Retrieved December 8, 2013 from http://crenos.unica.it/crenos/sites/default/files/wp/05-08.pdf

Lorenzo, F. D. (2013). international property index 2013 report. Retrieved December 24, 2013   from http://www.propertyrightsalliance.org/userfiles/2013%20International%20Property%2 0Rights%20Index-PRA.pdf

Martin, R. & Sunley, P. (1998). Slow Convergence?The New Endogenous Growth Theory and Regional Development. In Economic geography,74(3). Retrieved December 8, 2013 from http://onlinelibrary.wiley.com/doi/10.1111/j.1944-8287.1998.tb00113.x/pdf

Masters, W. A & Mcmillan, M. S. (2000). Climate and Scale in Economic Growth, In Journal of Economic Growth,6(3). Retrieved November 28, 2013 from http://ageconsearch.umn.edu/bitstream/11845/1/ha50ma01.pdf

McArthur, J. W. & Sachs, J. D. (2001). Institutions and Geography: Comment on Acemoglu, Johnson and Robinson (2000). In NBER Working Paper,8114. Retrieved November 23, 2013 from http://www.nber.org/papers/w8114

North, D. C. (1990). Institutions, Institutional Change and Economic Performance, In Cambridge University Press. Retrieved November 31, 2013 from http://ww2.odu.edu/al/jchen/Comparative%20Politics%20(Graduate)/Review%20Essays/Week%206/Robert%20Donnelly.pdf

Romer, P. M. (1989). ENDOCENOUS TECHNOLOGICAL CHANGE. InNBER Working paper,3210. Retrieved December 10, 2013 from http://www.nber.org/papers/w3210.pdf?new_window=1

Romer, P. M. (1986). Increasing Returns and Long-Run Growth, In The Journal of Political Economy,94(5). Retrieved December 7, 2013 from http://www.dklevine.com/archive/refs42232.pdf

Romer, P. M. (1994). The Origins of Endogenous Growth. In The Journal of Economic Perspectives,8(1). Retrieved December 5, 2013 from http://www.iset.ge/old/upload/Romer%201994.pdf

Sala-i-martin, X. (1994). Cross-Sectional Regressions and the Empirics of Economic Growth. In economic working paper,79. Retrieved December 7, 2013 from http://econ.upf.edu/docs/papers/downloads/79.pdf

Solow, R. M. (1956). A Contribution to the Theory of Economic Growth. InQuarterly Journal of Economics,70. Retrieved November 28, 2013 from http://qje.oxfordjournals.org/content/70/1/65.full.pdf

Tamura, R. (1991). Income Convergence in an Endogenous Growth Model. InJournal of Political Economy,99(3). Retrieved December 4, 2013 from http://www.jstor.org/stable/2937741