Economic Growth and Cycles in Asia and Africa in the 20th Century

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ABSTRACT

During the 20th century some important asian countries have experienced a great growth of GDP and population, mainly in China and India. The relations among both variables and the analysis of growth and fluctuations in these countries during the 20th century is the main purpose of this paper. The paper refers some features of all the century but the analysis is specially performed with data of the second half of this period.

We also present a general view of economic growth and fluctuations in Asia and Africa and fit some econometric models that contribute to analyse the causes that explain that evolution.

We also compare the fluctuations and growth of these areas with OECD countries, and recommend some policies to improve the economic performance of the countries of our study.

1.- Introduction

During the 20th century Asia and Africa experienced a great increase in real Gross Domestic Product, Gdp, but despite this great growth, at the end of the century very few countries of either of these large areas reached a high level of income and wealth, and the majority of them were under world average.

The main cause of the low values of real Gdp by inhabitant, Gdph, in the year 2000 was the low level of education, measured by average total years of education of adult population, in the majority of Asian and African countries, throughout the century.

Nevertheless there are important differences between Asia and Africa, as many countries in Asia began a sustained evolution in education over the last few decades of the century but very few countries in Africa experienced a similar positive trend.

In section 2 we analyse economic growth in Asia and Africa, while we dedicate section 3 to the analysis of economic fluctuations in comparison with other areas. Finally in section 4 we present the conclusions.

2.- Economic growth and cycles in Asia

Table 1 presents the evolution of exponential rates of growth of real Gross Domestic Product (Gdp), Population (Pop), and Gdp by inhabitant (Gdph) in Asia and Africa, in comparison with other world areas, according to the exponential rates of Guisan, Aguayo and Exposito(2001) based on data from Maddison(2001).

The rates of growth are the average percentage of yearly increase, measured in exponential terms, which differs a little from the usual compound rate used by Maddison. Both methods are adequate but we have chosen the exponential one because this method guarantees the identity:

Rate of Gdph = Rate of Gdp – Rate of Pop

In this table we see that the highest increases in real Gdp, during the 20th century correspond to Japan with an exponential average annual rate of 4.21% in the period 1913-98, followed by Latin America with 3.75%, Asia without Japan with 3.32%, USA and other English offshoots with 3.14% and Africa with 3.12%. All of these great areas had an average rate higher than the world average which was 2.97% throughout the period.

West Europe had an average exponential rate of only 2.40% and the great area of East Europe and ex-Ussr reached an average rate of only 1.91%, both below world average.

Table 1
Average percentage of yearly growth 1913-998
(exponential rates)

Area	Rate Gdp	Rate Pop	Rate Gdph
West Europe	2.40	0.47	1.93
USA + w.o.s	3.14	1.25	1.89
Japan	4.21	1.05	3.16
Asia excl. Japan	3.32	1.53	1.79
Latino America	3.75	2.16	1.59
East Europe+exUssr	1.91	0.66	1.25
Africa	3.12	2.12	1.00
World	2.97	1.40	1.56

Source: Guisan, Aguayo and Exposito(2001), based on Maddison(2001).

Gross Domestic Product. Africa, Asia with the world.
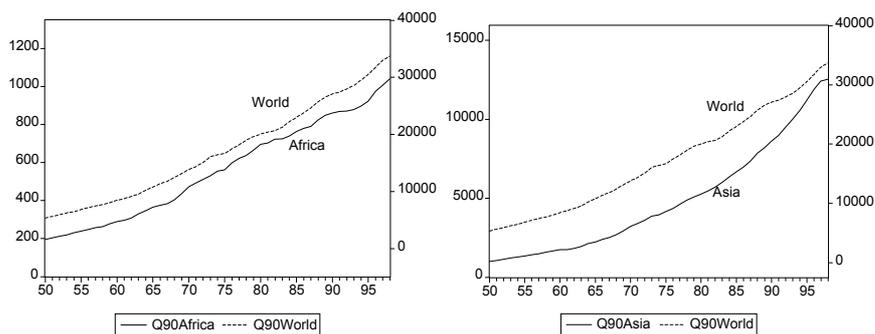
Nevertheless if we see the rates of growth of Gdph the order of these areas is very different. Although the first place also corresponds to Japan with 3.16%, this is the only coincidence, as the second place corresponds to West Europe with 1.93%, followed by USA and other English offshoots with 1.89%, Asia without Japan with 1.79%, Latin America with 1.59%, East Europe and ex-Ussr with 1.25% and Africa with only 1%. World average was 1.56%, so neither of the last two areas reached world average.

We see that Japan experienced the highest increase both in Gdp and Gdph, because besides an important increase in physical and human capital this country experienced a moderate demographic growth, with an average growth rate of Population of only 1.05% during the period 1913-98, below the world average of 1.40%. The growth rate of Gdph in Japan was 3.16%, and is the difference between the growth rate of real Gdp, 4.21, and the rate of growth of Population of 1.05%

West Europe, with a modest growth rate of Gdp of only 2.40% reaches the second position in the average growth rate of Gdph, with 1,93% thanks to the moderation of the average growth rate of Population, with only 0.47%.

The large area formed by USA and other English offshoots, which includes Canada, Australia and New Zealand in the classification of Maddison, reaches third position for average growth rate of Gdph in the period 1913-98, with 1.89, which is the difference between the growth rate of real Gdp, 3.14%, and a growth rate of population of 1.25.

The fourth position belongs to Asia without Japan, with and average growth rate of Gdph of 1.79, which is the difference between the growth rate of real Gdp, 3.32, and the growth rate of Population, 1.53.

Latin America reaches only fifth position in Gdph, with an average rate of only 1.59, the difference between the growth rate of real Gdp, 3.75, and the very high rate of Population growth of 2.16%.

The sixth position among these seven great areas corresponds to East Europe and ex-Ussr, with an average growth rate of Gdph during the period 1913-98 of only 1.25%, the difference between an average growth rate of real Gdp of only 1.91% and a rate of population growth of 0.66%.

The seventh position belongs to Africa, which is the area with less growth of Gdph in the 20th century, mainly due to the very high rate of Population growth. So the average growth rate of Gdph was only 1%, which is the difference between the growth rate of Gdp, 3.13% and the high growth rate of Population of 2.13%.

These figures are very important and both governments and international organisations should think about the socio-economic policies neccesary to achieve better results for the areas with the lowest levels and growth rates of Gdp by inhabitant, as in the case of Africa.

They should take into account that international cooperation should especially address the improvement of education, as this important factor contributes in a very significant way both in improving production and in reducing reproduction.

Other measures are also important, such as social peace and laws that guarantee private property which are generally very positive for creating an adequate environment for increasing investment.

Without these measures misery and poverty will not be overcome in many important areas of Asia and Africa. For this reason it is important to insist on the causes of the differences of income among geographical areas: it is not only a problem of solidarity but also, and mainly, a problem of unequal educative levels amongst the populations.

According to the data of Maddison(2001) the value of Gdph in 1913 of Japan was 1387, while Asia with Japan had a value of only 640, very similar to that of Africa which was 585. All of these values were below World average, which in that year had a value of 1510 US$ at 1990 prices (US$90).

As a consequence of the different evolution of their rates of growth of real Gdp and Population, Japan, in 1998, reached a value of Gdph equal to 20413 US$90, and Asia without Japan reached 2936, lower than the World average of 1998 which was 5709. This area performed rather badly during the first half of the century but had a better evolution during the second half and will probably continue an important sustained growth during the first decades of 21th century.

In tables 2 and 3 we can see some of the main differences among several areas of Asia and Africa and compare the values of Population in 1980 and 1998 (Pop80 and Pop90), Production by inhabitant in 1980 and 1998 (Gdph80 and Gdph98), average total year of education by inhabitant in 1999 (Tyr), public education expenditure by inhabitant in 1994 (Eduh), and Fertility rate by woman in 2000 (Fer00), with the corresponding World figures.

Table 2
Population, real Gdp by inhabitant, Education and Fertility in Asia

Areas of Asia	Pop80	Pop99	Gdph80	Gdph99	Tyr	Eduh	Fer00
1.Next East	53.3	102.4	9463	7020	4.6	244	5.3
2.Middle East	137.3	223.2	2375	2988	3.2	125	4.8
3.India and South	804.6	1168.8	1169	2285	4.5	46	3.4
4.Japan	116.8	126.6	16359	25975	9.7	1003	1.4
5.China and North	1026.0	1306.0	966	4293	5.9	66	1.8
6.Indochina	179.3	245.1	1399	3022	4.7	99	2.8
7.South Pacific	236.4	340.9	3295	5061	6.0	157	2.8
ASIA and Pacific	2553.7	3513.0	2196	4393	5.3	112	2.7
WORLD	4428.6	5970.6	5284	7125	5.8	258	2.8

Table 3

Population, real Gdp by inhabitant, Education and Fertility in Africa

Areas of Africa	Pop80	Pop99	Gpdh80	Gdph99	Tyr	Eduh	Fer00
1.North	90.0	138.4	3252	4102	4.8	237	3.3
2. North West	112.8	195.5	1448	1273	2.8	29	5.7
3.West Central	73.7	127.6	1925	997	2.5	21	6.6
4.North East	61.8	103.5	673	672	2.2	26	6.7
5.East	58.7	101.9	822	865	3.1	44	5.7
6.Southern	69.3	110.8	4958	4614	4.9	152	5.0
AFRICA	466.3	777.7	2291	2140	3.4	87	5.4
WORLD	4428.6	5970.6	5284	7125	5.8	258	2.8

Source: Guisan and Exposito(2001), with data from 210 countries, based on United Nations, World Bank and other international sources.

Africa on the whole performed worse than Asia, only reaching a value of Gdph of 1368 US$90 in 1998, less than half the average value of Asia.

The main cause of the different evolution of Africa in comparison with Asia is the lower level of education of the population of Africa and, consequentially, both a lower growth rate of production and a higher growth rate of population reproduction.

The situation for many African countries is rather critical, with many cases of violence, war, economic stagnation and lack of hope for the future. These circumstances explain the desperate attempts of emigration to other areas with better living conditions such as the European Union.

Economic evolution in Asia improved a great deal over the last few decades of 20th century, as we can see in table 2.

On the other hand Graphs 1 and 2 show the evolution of Gdph in the areas of Africa and Asia. We see that the Growth of Gdp is very remarkable but the growth of Gdph is small in many areas as a consequence of the high rates of fertility and population growth.

In tables 2 and 3 we see that the recent evolution in Asia and Africa and in the period 1990-98 shows that the situation is much better in Asia because there has been a greater improvement in education and thus the rate of production is higher and the rate of reproduction of population is lower. As a consequence Asia doubled its real value of Gdph in spite of its great population growth over the last two decades of 20th century, while this variable remained stagnant for Africa.

We would like to call to the attention of public opinion, and also international organisations advisers, so that they can develop more effective policies for avoiding poverty and increasing well-being in the poorest areas, that it is essential to improve education as this is the main factor in achieving important reductions in fertility rates in woman and in the yearly rate of growth of population.

Although education is now much more recognized than in the past, because of the important impact that human capital has had on productivity per worker, there is not yet a generalized consciousness about the first class role that education plays in fertility.

In table 2 and 3 we can see the important negative correlation existing between fertility and education evolution. Although China is a special case because as it is a country where demographic policies have reduced fertility beyond the levels expected for its educative level, in general the higher the level of education the lower the level of fertility, given a similar structure of demographic ages in population.

In some countries that receive immigrants or have some groups of population with educative levels lower than average, the average rate of fertility can be higher in comparison with other countries of similar average total years of schooling by inhabitant but with more cultural homogeneity.

Gross Domestic Product . Africa and Asia.
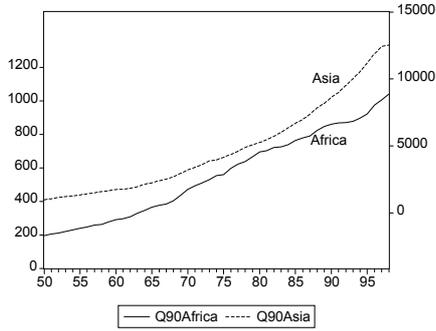

Population. Africa and Asia.
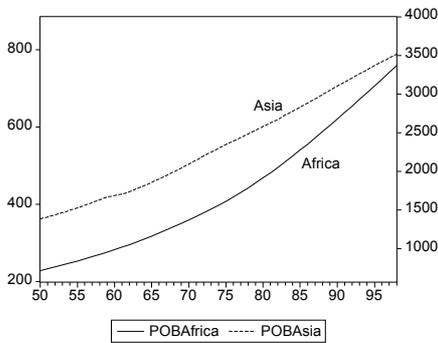
Gross Domestic Product by inhabitant. Africa and Asia.
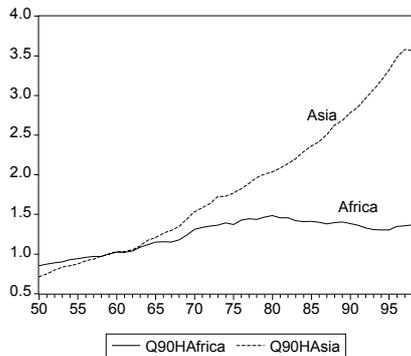
3.- Cycles and Growth in Asia, Africa and other areas.

In the following tables we compare the rates of growth of real Gdp in different periods in Asia, Africa, and OECD countries, and we can see that the areas with higher rates of growth have generally experienced more fluctuations.

Rates of growth of GDP
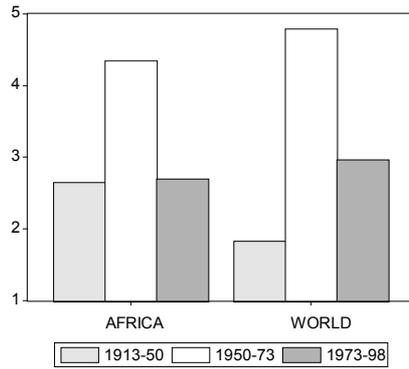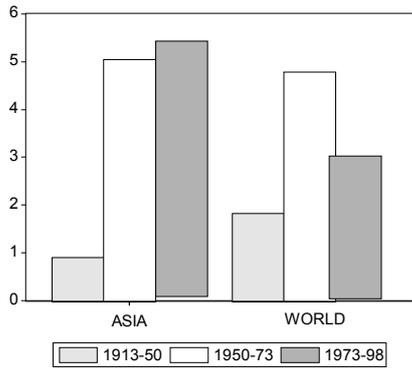

Rates of growth of population
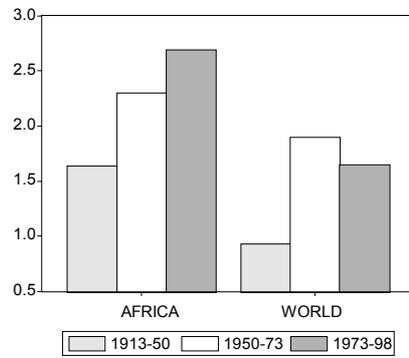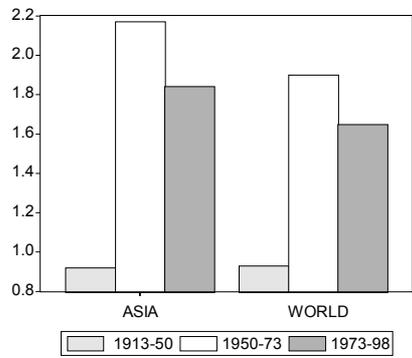

Rates of growth of gdph
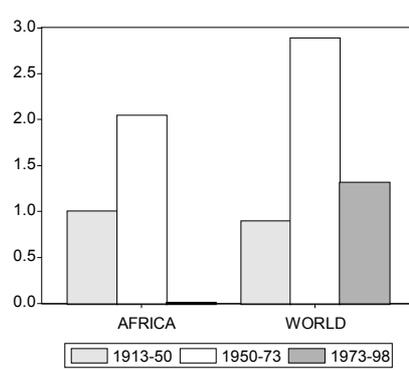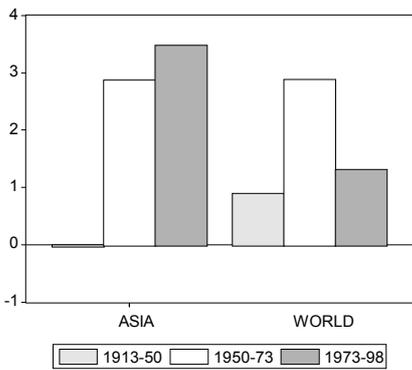
Rates of growth of gdp. Asia and Africa.
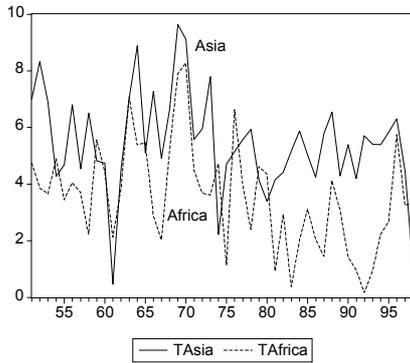
Rates of growth of population. Asia and Africa.
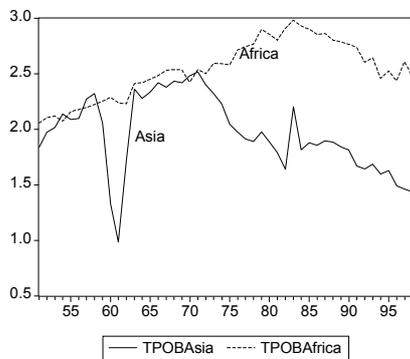
Rates of growth of gdp by inhabitant. Asia and Africa.
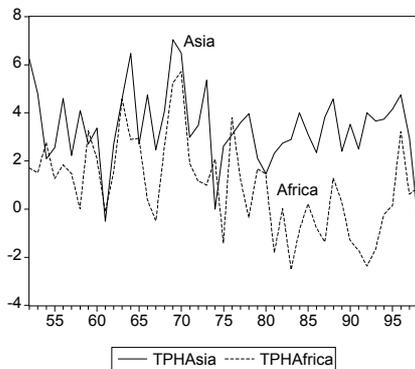
This happened because Less Developed Countries (LDCs) have a structure of production with a lower weight in the Services Sector, and this make them more sensitive to fluctuations in international prices of agriculture or other commodities or other circumstances, such as wars in Africa or external trade in Asia, which all influence the value added of their Agriculture and Industry.

In recent years some papers by Stiglitz(1998) and other authors have pointed out the unsuitability of rigid policies like those of the International Monetary Fund, IMF, which try to give priority to stabilisation against growth. This type of policy is generally

wrong in the case of LDCs, and of course insufficient, as the main problems of the majority of LDCs are related to their low level of human and physical capital.

As a consequence of many interesting studies on the analysis of economic growth and cycles some researchers of the NBER, World Bank advisers, and other economists at universities and development institutions, are trying to change economic policy focus towards growth instead of stability, as for less industrialised countries this is essential for sustained development.

In a recent paper of NBER, Goldin(2001) presents a very interesting paper where she explains that the historical leadership of the USA in 20th century development was mainly due to the role of Protestantism in fostering the spread of secondary education among population, while other religions did not have such a positive and early influence in improving this important factor of development.

Rates of growth of gdp (Africa, Asia, Indonesia and India with European Union).
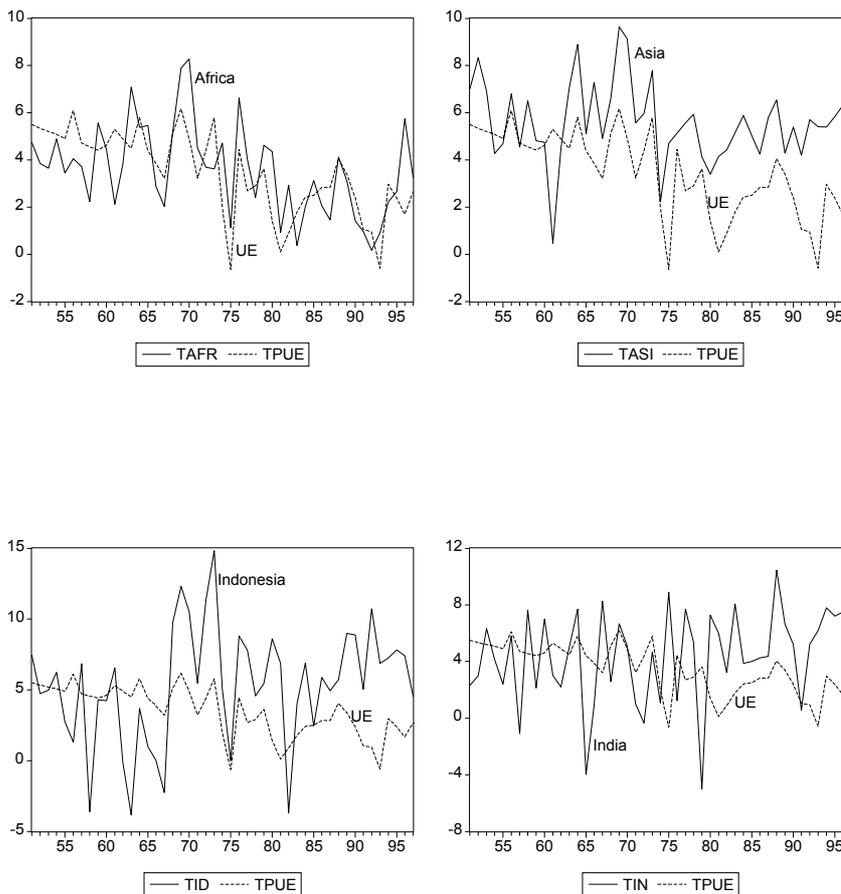
4.- Conclusions

Some of the main conclusions that we would like to make from our analysis of economic growth and cycles in Asia and Africa are the following:

1) Real Gross Domestic Product experienced a very important increase in the 20th century, both in Asia and Africa, where average growth rates in the period 1913-98 were higher than world average in both cases, the average rate of yearly growth of Gdp being 4.21% in Japan, 3.32% in the rest of Asia, 3.12% in Africa while World average was 2.97%.

2) In Japan, population growth was lower than world average, with only 1.05%, and the increase in Gdp by inhabitant was very high with an average of 3.16% throughout the 20th century. In the rest of Asia population growth was higher than in Japan and the value of Gdph had a growth of 1.79% which is better than world average but not enough to reach good levels of well-being in the majority of areas and countries.

3) Despite the high yearly growth rate of real Gdp, Africa experienced very little growth in Gdp by inhabitant, because of the very high growth rates of population, which averaged 2.12% during the period 1913-98, implying that population grew from only 129 millions of people in 1913 to 221 millions in 1950 and an impressive 777 million in 1998. As a consequence, the average yearly growth rates of Gdp by inhabitant during the 20th century was only 1% which is completely insufficient for guaranteeing a good quality of life in the majority of the countries.

4) Fluctuations in Asia and Africa are very related to international influences although in the next few years the correlation may well be higher because of their openness to external trade. We should realise that for these countries growth has priority over stability and, although some degree of moderation in fluctuations should be regarded as positive, policies to guarantee higher growth rates of Gdph should be recommended, and international cooperation should focus on education and other variables that positively influence the rate of growth of Gdp and, at the same time, reduce excessive rates of fertility.

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