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# Christianism, Strikes and Economic Development in Congo Republic

Diana Loubaki

ISG, Department of Economics, Marien Ngouabi University, Congo Republic

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***Abstract:*** **this article studies the relationship between religion and economic development in order to establish the balanced growth path (BGP). Since growth reduces religiousity, it yields corruption, whereas, the reverse relation leads to fertility and poverty increase. Since public works are not properly remunerated specifically in healthcare and in education, strikes consequences, slow the economy which increases death rates, reduce life expectancy and human capital level in the country since they are all the mechanics of economic development however. Indeed, health problems yield labor/population welfare and productivity decrease. We establish the BGP foundations in Congo for growth and development purposes. Moreover, because technology is a by product of education or human capital, it can create development and boost economic growth in Congo republic if and only if religion and growth variables grow at the same constant rates without corruption that yields public funds disappearance every time along the BGP.**

***Keywords:*** **BGP, religion, christianism, corruption, helathcare, human capital.**

## 1. INTRODUCTION

Most people in Congo Republic are Christians even if it is mixed with tradition believes. In the following array, you can see the evaluation in percentage of influences of christianism in congo (brazzaville). Islamic people are mostly from Western Africa.

| Rank | Influences | Percentage |
|---|---|---|
| 1 | Roman Catholic Church | 33.1% |
| 2 | Church of Revival | 22.3% |
| 3 | Protestantism | 19.9% |
| 4 | Atheism | 11.3% |
| 5 | Salvation Army | 2.2% |
| 6 | Islam | 1.6% |
| 7 | Kimbanguism | 1.5% |
| Others | 8.1% | |

Source : Peggy Fernandez (2024)

The aim of this article is to study the relationship between christianism and economic growth in Congo (Brazzaville). We already know two thing, *first* most of developing counties face corruption that can be fight by religion i.e christianism in the concern of Congo but what conditions need to be filled for religion to be powerfull and through out corruption for economic growth to enhance ? *Second*, religion increases fertility, thus poverty and retards demographic transition which is a mechanics of economic growth according to Western Countries experience.

Because the article uses both growth and development theories, we need to say something about the link of the both theories. *First*, since the mid 1970s economists have broken barriers in a number of fields: international trade, economic growth, and, finally, development (Krugman, 1994). Therefore, *second* this article uses growth theory to establish a balanced growth path which is a locus on the space, where religion and growth variables move at the same constant rates through the time in order to make development yields in Congo (Brazzaville).

In the concern of the literature on the fields, it can be noticed that, both growth theory in the 1970s and development theory in the late 1950s face crisis which was neither empirical nor ideological it was methodological. Development theorists were having a hard time expressing their ideas in the kind of tightly specified models that were increasingly becoming the unique language of discourse of economic analysis. They were faced with the choice of either adopting that increasingly dominant intellectual style, or finding themselves pushed into the intellectual periphery. They didn't make the transition, and as a result development theory was largely purged from economics.

Some of the classics of development theory differed in their vision. On the one side, Arthur Lewis's famous "Economic development with unlimited supplies of labor" emphasized dualism while ignoring the role of economies of scale and circular causation. On the other side, some authors, notably Fleming (1954), argued that owing to the role of intermediate goods in production what Hirschman would later memorably dub forward and backward linkages -- self-reinforcing development could conceivably occur even without dualism. There were also disputes over the nature of the policies that might be required to break a country out of a low-level trap. Rosenstein Rodan and others appeared to imply that a coordinated, broadly based investment program -- *the Big Push* -- would be required. Hirschman disagreed, arguing that a policy of promoting a few key sectors with strong linkages, then moving on to other sectors to correct the disequilibrium generated by these investments, and so on, was actually the right approach. Indeed, Hirschman structured his book as an argument with what he called the "balanced growth" school like Uzawa (1965) in growth theory. He did not acknowledge that he had far more in common with Rosenstein Rodan (1943) and other "balanced growth" and many others in growth theory (Helpman and al, 2017, 2021). Growth theorists, by the late 1950s, become increasingly hostile to the kinds of ideas involved in development theory. Above all, economics was going through an extended period in which increasing returns to scale, so central to that theory, tended to disappear from discourse. Development theorists followed Marshall's example i.e their adherence to a discursive, non-mathematical style. Economics has, of course, become vastly more mathematical over time. Nonetheless, development economics was archaic in style even for its own time. Of the four most famous high development works, Rosenstein Rodan's was approximately contemporary with Samuelson's formulation of the Heckscher-Ohlin model, while Lewis, Myrdal, and Hirschman were all roughly contemporary with Robert Solow's initial statement of growth theory. As in Marshall's case, this was not because development economists were peculiarly mathematically incapable. Hirschman made a significant contribution to the formal theory of devaluation in the 1940s, while Fleming helped create the still influential Mundell-Fleming model of floating exchange rates. Moreover, the development field itself was at the same time generating mathematical planning models -- first Harrod-Domar type growth models, then linear programming approaches -- that were actually quite technically advanced for their time.

So both development and growth theories couldn’t be expressed in formal models because of the assumption of increasing economies of scale, because nobody knew how to put these scale economies into formal models.

The crisis was caused by the difficulties to introduce increasing returns in the neoclassical competitive growth model. Specifically in dynamic optimization models in order to explain the sources of countries’ heterogeneity without the equalization theorem among the countries to play caused by the hypothesis of the decreasing character of marginal productivity of physical capital, thus countries appear to be the same over time since the poor grow faster than the rich countries according to Solow (1956). But during decades, that last finding couldn’t be proved empirically until the introduction of the Emerging countries in the economic system which contradict the rejection of that convergence notion generated by the Solow (1956) finding. Nevertheless, before that time, how to render growth endogenous was the main question, thus the both theories lost their interest as long as appropriate answers couldn’t be find in the 1970s. Indeed, both growth and development economics articles became incomprehensible for the one and not interesting enough for the others, thus could no more be published specifically in development economics. Growth theory performs in static international trade models where the existence of both the long run growth equilibrium and optimum was avoided in dynamical models, thus lost their interest despite of Knight (1925) advices on the dynamic models challenges. The growth

theory began to turn around looking for the way to introduce increasing returns in the dynamic models and keep the competitive character or the neoclassical growth model specificity at the same time which was difficult to do because the Euler law couldn't work anymore, since it yields technology to be remunerated as the other input of production such as capital and labor stocks, the firms will face losses caused by the profit maximization condition which yields to set profit to zero

The essential problem is that of market structure. From Ricardo until about 1975, what economists knew how to model formally was a perfectly competitive economy, one in which firms take prices as given rather than actively trying to affect them. Romer (1986, 1990) show-off how to deal with increasing returns in a growth model.

Economic development pioneers crisis held between the 1970s and the 1990s when economists looked at those set of ideas with fresher eyes and recognize them to have finally a sense after all (Murphy, Shleifer, and Vishny, 1989; Krugman, 1994 , Loubaki, 2013)

Galor (2011) stressed that technological change was offset by population growth and living standards were near subsistence. An escaped from the Malthusian trap was facilitated by technological change induced by human capital leading to modern growth. The neglicted impact of economic growth on religion facilitates corruption as the fall of religiosity but the impact of religion on growth is fertility increase which leads back to the Malthusian trap since economic development is a process of three stages according to modern growth theory (Galor, 2000, 2011) i.e the Malthusian trap, the Post Malthusian trap and the modern growth..

Indeed, this paper presented what caused crisis faced by the both theories, first and show after that, if the economy is prevent from corruption leading to non wages payment raising strikes in education, public administrative institutions and healthcare specifically in the context of high fertility in Congo it is possible to introduce growth and development economics since religion introduces positive norms and values in the society for it to leave emerge a balanced growth path reducing poverty and health matters since that unique equilibrium is pareto optimal.

We study the equilibrium in this article in the relationship between religion and economic growth summariezd by corruption and strikes on the one hand and on the other hand, we can find physical capital, human capital, health, population/ labor and technology which yields development and accelerates growth in Congo Republic where public jobs remuneration are not regular, so that both in education and in healthcare there are frequent strikes which are dangerous specifically in hospitals and in universities there are not a well functioning that retards growth and development sustainability since the economic path is not continuous because salaries are not payed oftenly i.e each month, but only may be once during three months or more and the same thing for the resting income for old people and nobody know where public funds go but nothing is left for population which increases death rates and reduces life expectancy as well as decrease incentives to accumulate human capital in Congo Republic.

The article presentation is organized like follow, section 2 introduces the model of religion and growth in an overlapping generation style where agent live during two period when old which is the first and old which is the second with some ingredients like corruption in public funds and strikes generated since wages are not payed, human capital highly decrease since universities are closed and hospitals too. Section 3 presents the results found and the last section brings a little conclusion.

## 2. THE MODEL

The key proposition of this article is that, christianism affect economic growth and econmic growth also affect christianisme and there are strikes because of non salary payment and poverty due to demographic transition absence specifically because of the power of religion on population growth. We use a macroeconomic production function which is a functional form of the Cobb-Douglas shape such that

$$Y_t = A_t K_t^{\alpha} (\varepsilon h_t L_t)^{1-\alpha} \quad (1)$$

Where physical capital, $K$ as an elasticity, $\alpha$, lalor, $L$ human capital per-worker, $h$, and $\varepsilon = wa - 1$ captures the relationship between strikes due to corruption that makes public funds disappear and economic growth through the wage

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rate, $w$ non payment, the whole as an elasticity, *1-α* thus scale returns are constant since, $\alpha + (1 - \alpha) = 1$ and productivity, $A_t$ increases physical capital and labor, $a > 1$

There are three types of works in Congo, non formal work where, $\varepsilon = h \to 0$ i.e there are not concerned by strikes and human capital is very low thus, *w=1/a* which is quite low too since *a* is high and oftenly increases poverty because that wage is randomly earned and those concerned people, have great reliousity rate and high fecundity rates too. Public works are concerned by strikes due to corruption in funds, when $\varepsilon = h \to 1$ then, *w=2/a* which find evictions since public funds oftenly disappear and nobody know where they go, thus raise strikes that block growth and development. Finally private work in foreign societies such as banks when, $0 < \varepsilon = h < 1$ then, $w < 2/a$ are payed with probability *1* and there are not strikes in that area and are not concerned by corrupted agents or system.

Strikes arise when $\varepsilon < 0$ because corruption in public funds yields no salaries left for several months in average three or four months without money specifically in universities, public administration and in healthcare system i.e hospitals in Congo republic. Professors and Med Doctors get out of the system and human capital both in education stops and in healthcare become negative, $h < 0$ which block sustainability, growth and finally economic development. Public agents of institutions sell public services to agents to earn money not paid by the government like passports and identity cards which are very hard to get in the normal way because the system of attribution is highly corrupted.

Optimization of the production function yields the average wage rate income, $w$ and the interest rate, $1 + i$ written like following

$$w_t = (1 - \alpha)A_t l_t^{\alpha} \quad (2)$$

$$1 + i_t = \alpha A_t l_t^{\alpha - 1} \quad (3)$$

Where, $l_t = \frac{K_t}{\varepsilon L_t h_t}$

The utility of the agents can be expressed such as following

$$U_t = \ln(c_t) + \beta \ln(r_t) + \gamma \ln(d_{t+1}) \quad (4)$$

Where $c_t$ is per-capita consumption of the first period, $d_{t+1}$ is per-capita consumption of the second period and $r_t$ is the degree of religion belief whereas $\beta$ and $\gamma$ are respectively the elasticiries of religion and of the second period per-capita consumption

In the first period, the agent saves a part of his wage rate income and spends the rest in consumption, $c_t = w_t - s_t$ and in the second period, the consumer is in rest, thus consumes all his savings, $d_{t+1} = (1 + i_t)s_t$

Eliminating the savings, the intertemporal budget constraint of the consumer can be written such that, $w_t = r_t + c_t + \frac{d_{t+1}}{1+i_t}$

The consumer must solves the following program

$Max\{U_t = \ln(c_t) + \beta \ln(r_t) + \gamma \ln(d_{t+1})\}$

St

$$w_t = r_t + c_t + \frac{d_{t+1}}{1 + i_t}$$

Which yields the first order conditions such that

$$c_t = \left(\frac{1}{1+\beta+\gamma}\right) w_t \quad (5)$$

$$\frac{d_{t+1}}{1+i_t} = \left(\frac{\gamma}{1+\beta+\gamma}\right) w_t \quad (6)$$

$$r_t = \left(\frac{\beta}{1+\beta+\gamma}\right) w_t \quad (7)$$

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**Definition1 :** *the intertemporal consumption, can be written such that,*

$$c_t + \frac{d_{t+1}}{1+i_t} = \left(\frac{1+\gamma}{1+\beta+\gamma}\right) w_t = \mu_t \quad (8)$$

**Definition2 :** *growth in reliousity,$r_{t+1}$ can be written such that,*

$$r_{t+1} = n_t r_t + \mu \quad (9)$$

Where $n_t = (N_{t+1} - N_t)/N_t$ so population growth rate and $N_t$ is the size of population at time, $t$. It means that, population growth increases the degree or reliousity as well as the intertemporal per-capita consumption i.e more people deserves more food and are attached more to traditional christianism

To close the model, we announce definition3 so as all the economic circuit is blocked and leave emerge the Walras equation of macroeconomic loopback.

**Definition3 :** *$g$ is assimilated to the growth rate in reliousity, $g = r_{t+1}/r_t$ in order to reflect population fatality in thought since reliougisity increases growth expectation power in poor countries due to God power beliefs to change the future*

## 3. RESULTS

**Proposition1** : according to definition3, the economic growth rate can be written such that

$$g = n_t + \left(\frac{1+\gamma}{1+\beta+\gamma}\right)\left[\frac{(1-\alpha)A_t l_t^{\alpha}(1+\beta+\gamma)}{\beta}\right] \quad (10)$$

Strikes are include inside, $l_t = \frac{K_t}{\varepsilon L_t h_t}$ thus associated to human capital accumulation, they decrease growth and when strikes are too high i.e $\varepsilon \to -\infty$ because of corruption in public funds, they lead to negative human capital level, $h < 0$ reliousity growth rate increases and technology or modernity decreases because labor productivity decrease and there is healthcare damages since the hospitals are closed, development sustainability is ruled out.

**Proposition2** : population growth rate increases poverty and reliousity

Proof : this is both a result and an hypothesis according to definition2 and proposition1. In catholic religion three things are required : the obedience, poverty and chastity inside the union to become a good sister or priest which for people outside think that keeping poverty is a sign of God will, thus accept the behavior of the government of non salary payment and believe that by the power of God it will cease and salaries will be back one day, specifically for the people who practice unformal jobs without resting income in the future they are also impacted by strikes since they can't sell their merchandise. They also believe that abortion is not the will of God and as two aspects : it is too expensive for them and also forbidden in the country. Scientific results have proved that, there exist a positive relation between fecundity and poverty on the one hand whereas in the other hand, demographic transition i.e the constant evolution of population growth is a mechanics of economic development.

**Proposition3** : strikes cease i.e $\varepsilon \to \infty, h > 0$, yields to an unbounded active effective labor, $l_t \to \infty$ therefore unbounded development yields and economic growth accelerates since human capital as well as physical capital grow highly

Proof : see equation (9) and according to the literature of economic growth, human capital cause growth and development, therefore, the solution to break a country from the level trap is increasing human capital which is a by-product of technological change through R&D

**Definition4 :** *the equilibrium is defined by the BGP along which both economic and religious variables grow at the same constant rate*

**Proposition4** :there exist a BGP along which religion and population growth stabilize i.e demographic transition occurs, strikes cease and boost economic growth and development economic (see figure1 below for proof)

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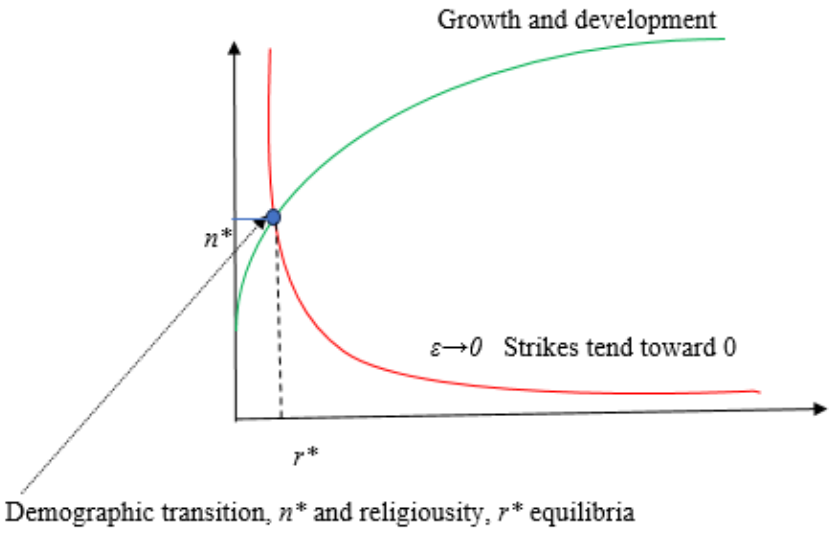


**Figure 1**

## 4. CONCLUSION

We have shown in this article that, corruption causes strikes due to public wages non payment which rules out development sustainability and economic growth. But the equilibrium exist in reliousity rate able to rule out corruption and then development can be unbounded as well as growth caused but human capital as well as health and labor productivity increase.

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