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ECONOMIC GROWTH AND POLITICAL INSTABILITY IN THE DEVELOPING COUNTRIES: A Systems View

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Abstract

Accelerating the rate of economic growth in the developing countries has been an important aim of almost all development policies implemented over the past three decades. Experience has shown that such growth is often not sustainable and is likely to be interrupted due to the occurrence of violent political changes. This paper attempts to identify the organizational factors which limit economic growth and which create conditions conducive to the outbreak of political violence. A mathematical model of the socio-political system of the developing country is developed and its behavior is studied using simulation.
Key words: Economic growth, system, role, behavior
Short title: Growth and Instability

1. Introduction

Public policies for fostering economic growth in the areas now called developing countries were unheard of before 1945 (1). Serious thinking about identifying the causes of poor economic conditions and finding ways and means to alleviate these conditions probably began in the mid-forties when, based on a comparison of the production systems of the industrialized and the economically backward areas, capital shortage was diagnosed as the main cause of economic backwardness and rapid economic growth was seen as a desirable policy for alleviating capital shortage (16). Thereafter, much has been done in the developing

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countries to accelerate economic growth, through increasing savings and encouraging investment, through foreign aid, through employment of resources in regions and sectors of the country considered more efficient, and through exploitation and export of natural resources (20).

These efforts indeed appear quite fruitful when the collective growth performance of the developing countries over the past three decades is considered. The GNP per capita of the developing countries as a group grew at an average rate of 3.4% per year during 1950-75, which exceeded all expectations. This high growth rate, however, masked a wide variety of performances, both among the developing countries in the group and over different points in time in a single country (14). It also hides large differences of income between the rich and the poor. The former, although forming insignificant fractions of populations, obtained most of the increases in income. The incomes of the latter remained unchanged or, in some cases, declined (9).

In many developing countries, the recipients of the benefits of economic growth often formed part of the socio-political coalitions holding the political power (21). Cross-country data shows that in many of these countries economic growth also helped to fuel the burgeoning expenditure on national security and defence (2), although such data has also been used to argue that defence expenditure facilitates economic growth (3). In either case, economic growth has rarely caused any substantial improvement in the economic condition of the general public (13).

Another interesting feature of the performance of developing

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countries since the inception of the economic growth effort has been the appearance of active dissident groups who, in many instances, are engaged in physical combat with government forces. Many developing countries have also experienced violent political changes which appear to disrupt economic growth besides destroying life and property (10). Indeed, political stability is considered to be an important condition for economic growth even if this stability is provided by a military dictatorship (6). According to Morawetz:

> "The historical experience suggests that political stability, of whatever ilke, and stability of the 'economic rules of the game' may be an important and under-rated determinant of economic growth. Most of the countries that grew fastest during the period (1950-75), had such stability; many of the conspicuous slow growers did not. Political stability, ofcourse, would be a necessary but not sufficient condition for growth — as any one of a number of stable, stagnant countries might testify." (14)

Ironically, some of the politically stable fast growers in Marowetz's list have since undergone violent political upheavals while their economic performance also declined sharply. This, combined with the fact that several politically stable countries have been known to be economically stagnant, gives the impression that all forms of political stability may not be important for sustained economic growth contrary to what is suggested by Marowetz.

Political stability in the case of developing countries is often interpreted as the presence of a strong military dictatorship which can effectively intervene into the socio-economic system for implementing policies for economic growth. A cross-country study by Beniot shows that governments supporting large defence expenditures have been able to achieve high economic growth rates. Since strong military dictatorships often have large outlays for defence, the Beniot study appears to

strengthen the belief that political stability provided by such dictatorships facilitates economic growth (4). The violent ending of many apparently stable dictatorships over the past few decades, however, points towards the phenomenological nature of this belief.

Although the political instability of the developing countries has been of much concern to the development scientists, no systematic attempt has been made to identify the organizational factors behind it. The only serious efforts to examine political and economic changes simultaneously have been in the Marxian style which often incorporates much rhetoric and many prejudices (7). Barring these, the political conditions in the developing countries have largely been attributed to personalities and acts of fate.

This paper, at the outset, attempts to explain the variability in the economic and political conditions experienced in the developing countries. This is done by viewing the socio-political organization of the developing country as a system of roles and by examining the composition of the information streams that shape these roles. A mathematical model incorporating the various information streams in the system is developed and its behavior is studied through computer simulation. The method of analysis used is outlined in Saeed (17) and Saeed (18). The information structure of the model used has been discussed in somewhat more detail than given in this paper in Saeed (19). Additional technical documentation, including a machine readable listing, is available from the author on request.

The study suggests that economic growth introduced thoughtlessly into a delicately balanced socio-political system may throw it out of

balance thus leading to a cyclical pattern of economic and political changes. This pattern encompasses the large variability in the economic and political conditions observed in the cross-sectional studies of the developing countries. The study also shows that although political stability may facilitate economic growth, this growth may not be sustainable if political stability arises from the presence of a totalitarian government.

2. Role Structure of the Developing Country Socio-political System

The important roles in a typical developing country socio-political system are played by three key actors: the government holding the political power, the dissident groups who wish to overthrow the government and come to power, and the public who often cannot participate in political decisions. The roles these actors play and their respctive motivations for playing their roles are summarized in Table 1.

ACTOR	ROLE	MOTIVATION FOR PERFORMING ROLE
Government	Allocating resources to economic activities and to defence in order to maintain power	perceived need for public support; Threat to power from dissidents and public criticism
Dissidents	Committing subversive acts against current regime with a goal to overthrow it	Public dissatisfaction with the current regime
Public	Supporting government or tolerating dissidents	Level of deprivation experienced

Table 1: Actors, Roles, and Sources of Motivation in the System

An important concern of the government is to maintain its control. For this, it attempts to get as much public support as possible, while at the same time, it also tries to assure that it is able to suppress dissident activities that might threaten its power. In order to obtain public support, the government must attempt to minimize the level of deprivation experienced by the public by improving their economic conditions. Thus, it should allocate as many of the national resources as possible to economic activities to facilitate economic growth. So that dissident activity may be suppressed, the government must maintain a sufficient defence and national security infrastructure, which drains national resources, thus limiting allocation to economic activities. Therefore, at any point in time, the distribution of resources between economic activities and defence will reflect the relative magnitude of the government's concern for public well-being and for overcoming the threat to its power (11).

The goal of the dissidents is to take power away from the existing regime. Thus, they try to expand subversive action against the regime as much as they can. They are facilitated in this task if their activities are tolerated by the public. The public, in turn, may be divided into groups supporting the government and those supporting the dissidents. Low levels of deprivation experienced by the public will increase the public support for the government and diminish public tolerance of dissidence. High levels of deprivation will work otherwise (10).

The role discharged by each actor at any point in time depends on the composition of the information streams providing motivation for the

role. These information streams, in turn, originate from the information levels which are constantly modified as the various roles are discharged (5). The information feedbacks formed in the process of discharging the various roles in the system are discussed in the following section.

3. Information Feedbacks Underlying the System of Roles

The role pressures for the various actors in the socio-political system described above appear in the form of circular information paths which encompass the acts of playing these roles and the sources of information providing data for action. At any moment, a role-playing action is based on the information currently available in the system. However, the same role-playing action creates additional information which is used to update past information. The subsequent action is based on the updated information. The information feedbacks thus formed force the various actors into their system determined roles irrespective of their personal preferences (12).

Figure 1 shows a simplified diagram of the information structure of the system being studied. The variables indicated in this diagram represent the various information sources in the system. The arrows connecting them show how these information sources affect one another through the role playing acts (not shown in Figure 1) which intervene between them.
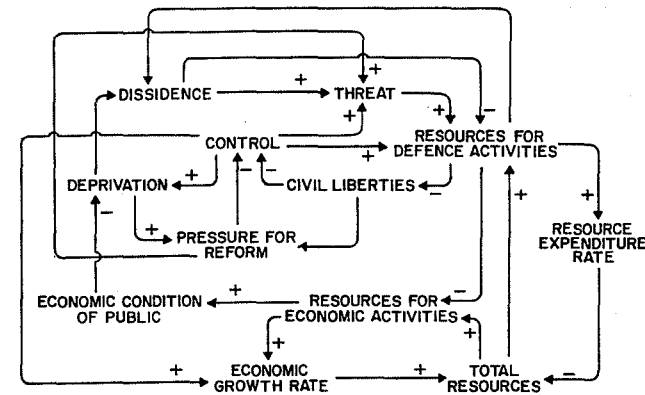
Figure 1 : Information Structure of the Political System

Dissidence rises through growth in dissident activities which, in turn, grow when the public is becoming increasingly deprived and hence tolerant of the dissidents. However, the presence of adequate defence resources can contain dissidence. Deprivation may have physical as well as psychological bases. Feelings of being deprived can grow when government control increases and public freedom is limited as well as when economic conditions deteriorate. Deprivation causes the public to exert pressure for reform of goverment policy provided there are adequate civil liberties to allow expression of these public concerns. However, civil liberties may be rapidly curtailed when the pressure for reform is seen by the government as a threat to its power.

If distributional aspects are ignored, economic conditions experienced by the public will depend mainly on the national resources placed in economic activities and how efficiently they are employed. These resources will grow through the natural processes of saving and investment. When government exercises a high degree of control over the economy, it will be possible to employ these resources more efficiently, which may lead to a higher economic growth rate. On the other hand, resources placed in defence activities cannot be regenerated but are expended through use. Thus, the net rate of growth in the total national resources will greatly depend on how they are distributed between economic activities and defence.

The distribution of resources between economic activities and defence, in turn, depends on the political conditions experienced by the government. An increasing amount of resources will be allocated to defence if the government is confronted with a threat to its power while

it also enjoys adequate control to be able to allocate resources at will. Note that the ability to enforce resource allocation decisions depends on the relative magnitudes of government control and dissidence.

The information structure described above can be mathematically represented as follows:

$$d(C)/dt = f_1(C,CL,PR) \qquad (1)$$

where,
C – Control
CL – Civil Liberties
PR – Pressure for Reform

$$CL = f_2(RDA) \qquad (2)$$

where,
RDA – Resources for Defence Activities

$$d(PR)/dt = f_3(PR,DEP,CL) \qquad (3)$$

where,
DEP – Deprivation

$$DEP = f_4(ECP,C) \qquad (4)$$

where,
ECP – Economic Condition of Public

$$d(ECP)/dt = f_5(ECP,REA) \qquad (5)$$

where,
REA – Resources for Economic Activities

$$REA = TR-RDA \qquad (6)$$

Where,
TR – Total Resources
RDA – Resources in Defence Activities

$$RDA = f_6(TR,TP, C/D) \qquad (7)$$

where,
TP – Threat to Power

$$TP = f_7(C,D,PR) \qquad (8)$$

Where,
D – Dissidence

$$d(D)/dt = f_8(D,DEP,RDA) \qquad (9)$$

$$d(TR)/dt = f_9(REA,C)-f(RDA) \qquad (10)$$

The above mathematical representation allows translation of the

information structure of the system into a form that is, for some, easier to interpret than the causal picture shown in figure 1. However, the system of differential equations described above is much too complex to solve using methods of conventional mathematics. Alternatively, an attempt is made to intuitively understand the behavior of this system using computer simulation and knowledge of the properties of information feedbacks. The use of this method requires expression of the information structure of Figure 1 in a computer simulation code DYNAMO instead of the formal mathematical symboles. The simulated behavior of the model, together with the picture of its feedback structure, is then used to understand how this behavior arises (15).

The model parameters used are purely judgemental and do not represent any known cardinal scales of measurement. Each variable of the model is measured in terms of an index running between zero and a positive value based on an arbitrarily chosen range of variation. The system is assumed to be initially at equilibrium with all state variables having a value of unity, although this value has a different meaning for different variables depending on their ranges of variation selected. The initial equilibrium also incorporates a relatively high level of acceptance of the regime by the public and a low level of dissidence. Furthermore, it incorporates ample civil liberties, a low level of government control, and low expenditure on defence with an albeit unchanging but tolerable economic conditions experienced by the public.

Table 2 shows the initial values, the specified ranges of variation, and the ordinal meaning of the initial values of the model variables.

Such initial conditions are representative of many developing countries before public policies for rapid economic growth were introduced. If this model is simulated, it would show unchanging behavior over time. However, if the rate of growth of resources in the model is stepped up, as was the case when economic growth policies were introduced, this equilibrium will be disturbed. A subsequent simulation of the model should bring out its internal dynamics. If the model is a reasonable abstraction of the real world organization it represents, the internal dynamics shown by it should incorporate the variety of the economic and political conditions experienced in the developing countries.

VARIABLE	SYMBOL	RANGE OF VARIATION*	INITIAL VALUE	ORDINAL MEANING OF INITIAL VALUE
Control	C	0 – 10+	1	Low
Civil Liberties	CL	0 – 1	1	High
Pressure for Reform				
Deprivation	DEP	0 – 10+	1	Low
Economic Condition of Public	ECP	f(REA)	1	Moderate
Resources for Defence Activities	RDA	–	20%	Low fraction
Resources for Economic Activities	REA	–	80%	High fraction
Total Resources	TR	–	1	low
Threat to Power	TP	0 – 10+	1	low
Dissidence	D	0 – 10+	1	low

* Positive signs following upper limits indicate variation depending on choice of parameters

Table 2: Initial Values and Ranges of Variation of the Model Variables

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4. Behavior of the Model and Understanding Patterns of Economic Growth and Political Instability

The time variant profiles generated by any mathematical model are quantitatively sensitive to its parameter values. But the qualitative behavior of a model with a rich feedback structure may be quite insensitive to changes in its parameters. Such insensitivity to parameters is also a property of the real world systems in which role behavior is relatively independent of the personal characteristics of the role players and depends largely on the role structure of the organization (8).

Thus, parameter insensitivity of a model is often a fortunate characteristic when the quantitative behavior of the model is not of main interest. Firstly, it indicates a correspondance between the model and the real world with respect to an important organizational property which enhances confidence in the model. Secondly, it allows the analyst to concentrate on understanding the dynamic properties of the behavior of the model instead of spending excessive time and effort in justifying the parameters used (8).

The qualitative behavior of the model developed in the last section appears to be largely independent of its parameter values as shown by simulation experiments. This behavior appears to result from the feedback structure of the model and the integeration processes incorporated in it. Figure 2 illustrates the behavior of the model when its equilibrium is disturbed by stepping up the normal economic growth rate from 2% to 4%. The resulting increase in the total national resources initially causes an improvement in the economic condition of the public. At the same time, it also allows the government to increase

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its expenditure on maintaining law and order. An immediate consequence of this is a slight decrease in civil liberties and an increase in government control, which nurtures feelings of relative deprivation among the public. No pressure for reform, however, may surface since civil liberties have been reduced. This allows further expansion of control, which also requires diverting more of the national resources to law and order activities. This leads to further curtailment of civil liberties, which allows the government to expand its control even further.
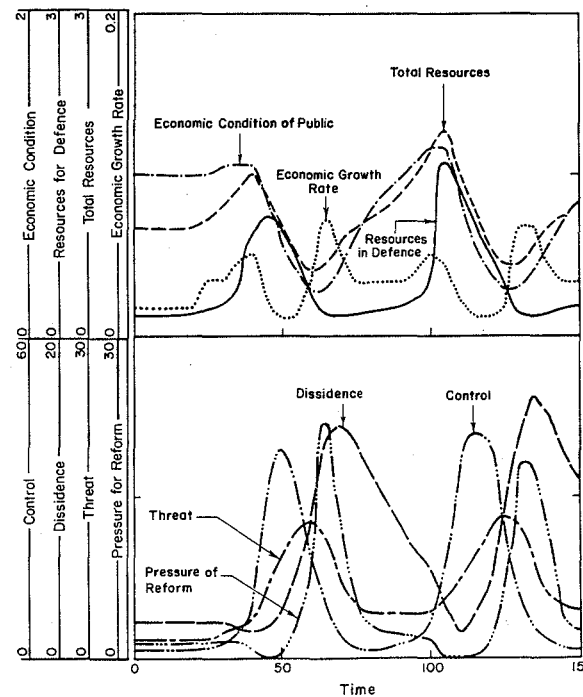

Figure 2: Economic Groth and Political Instability — The Base Case

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The reduced civil liberties may permit containment of public action pressing for reform, but the accompanying expansion in government control heightens feelings of deprivation among the public. An increase in the resources being diverted into defence activities also limits the resources which can remain in economic activities. This adversely affects the economic condition of the public, which makes them feel even more deprived.

Since government control has risen, the goverment is able to effectively allocate resources within the economic sector and this allows economic growth to continue at a fast rate even though resources are being allocated away from economic activities. At the same time, growing feelings of deprivation also begin to make the public tolerant of the dissidents who are thus encouraged to expand subversive action against the government. The expansion in dissidence is seen as an added threat to its power by the government and this forces it to draw additional resources into defence activities for containing dissidence. These actions have a snow-balling effect on the growth of government control and dissidence.

Economic growth is soon limited because continued allocation of resources to defence limits availability of resources for economic activities which, although efficiently allocated, can cause only limited growth in the total resources. At this time, because of the increasing level of threat faced by the government, it becomes almost impossible to stop and assess the resource allocation priorities. Thus, the government is caught in a situation in which dissidence is continuing to rise while the government's ability to contain dissidence starts

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declining due to the deteriorating resource availability. This not only limits expansion in government control but also causes it to start declining rapidly. Such a decline in government control might often be accompanied by a political revolution. In any case, as government control diminishes, dissidence continues to increase because, now, not only can dissidence not be effectively contained but, due to deterioration in resources, the economic condition of the public also becomes worse. This keeps increasing the level of deprivation which continues to fuel dissidence.

When government control is weak, dissidents strongly influence resource allocation decisions. Thus, resources are slowly drawn away from defence and placed in economic activities and a slow economic recovery begins. This does not immediately impove the economic condition of the public since, due to a high expenditure rate of resources deployed for defence, the level of total resources continues to fall, albeit at a decreasing rate. The continuing feelings of deprivation lead to very high levels of public protest and pressure for reform in face of the weakening government control. Such developments are amply reflected in the anarchy and chaos experienced in the developing countries before and after a political revolution.

As the quantity of resources in economic activities increases, the economic conditions stop deteriorating and eventually take an upturn. This reduces feelings of deprivation among the public thus making them supportive of the government and unsupportive of dissidents. Consequently, dissidence slowly dies out. Over this period the economic growth rate may again fall, as the weakened government control results

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in poor resource employment efficiency. But the overall level of resources continues to rise. However, when the economy has made a recovery, conditions are again ripe for government control to rise and the cycle of events described above is repeated.

The behavior exhibited by the model closely resembles the pattern of economic and political changes experienced in many developing countries. The distinguishishing features of these patterns are the occurrence of rapid economic growth when government control is high and rising and the unsustainable nature of this growth which creates a cyclical pattern of changes.

Two interesting observations may be made at this point: First, the cyclical pattern generated by the model incorporates the association between economic growth and political control observed in the real world over some parts of the cycle. Over the other parts, it negates such association. This rationalizes the conflictig evidence obtained from the cross-country studies. Second, the cyclical behavior arises purely out of the changing role pressures generated within the system and not from any arbitrary personal characteristics of the actors playing various roles.

These observations may appear disturbing as they make the economic growth efforts appear quite futile. However, they point toward the fact that even though economic growth may be a desirable policy objective for improving the economic condition of the public, growth policies which are oblivious of the structure of the social organization in which they are implemented may be quite self-defeating.

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5. Economic Growth and Welfare-minded Totalitarian Governments

It is often argued that a "strong" government, who is concerned with improving the economic condition of the public, can manage national resources judiciously and thus achieve sustainable economic growth. Indeed, a lot has been said and written about strong and benign dictators and how well they are suited to taking charge of under-developed countries with poorly managed resources (6). The welfare concerns of a regime can be incorporated into the model by constructing the information link shown in heavy line in Figure 3. Because of this link, some restraint is exercised in allocating resources away from economic activities when economic conditions are poor, even though the perceived defence needs may urgently demand more resources. This link can be incorporated into the mathematical model described in section 3 by modifying equation 7 as follows:

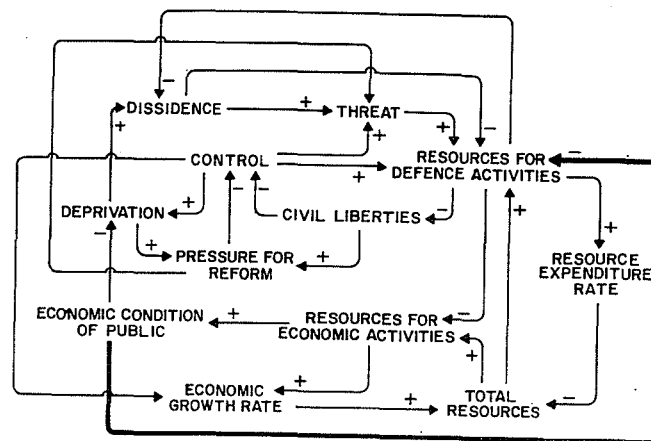$$RDA = f_{10}(TR, TP, C/D, PWB) \qquad (11)$$

Figure 3 : Information Structure for the Case of a Welfare-mined Totalitarian Government

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Simulation of the modified model in Figure 4 indicates that the welfare-minded totalitarian governments may only help to increase the frequency of cyclical behavior discussed in the last section. As more resources are left in economic activities, not only does the economy grow at a faster rate and the economic condition of the public improve, but the public also becomes increasingly tolerant towards an expansion of the government's control. The greater its control, the more a government feels threatened even by minor dissidence. Unfortunately, dissidence continues to rise steadily as public tolerance for it increases because of the psychological deprivation created by the respective increase in government control. Soon, the security concerns of the government start taking precedence over its welfare concerns and, to counter dissidence, the welfare-minded dictatorship starts transferring large amounts of resources to defence activities. This limits growth and eventually causes an economic downturn. Subsequently, the government is faced with rising dissidence and a declining ability to control it, which creates role pressures similar to those in the earlier case, although these pressures develop at a faster rate.

A welfare-minded totalitarian government may be able to accelerate the economic growth rate in the beginning, but it is unable to maintain its welfare-minded attitude when it is faced with a threat to its power. Thus, the faster growth rate in the beginning contributes largely to a faster development of conditions wherein the government experiences rising dissidence and a declining ability to control it. Hence the increase in the frequency of the cyclical behavior.
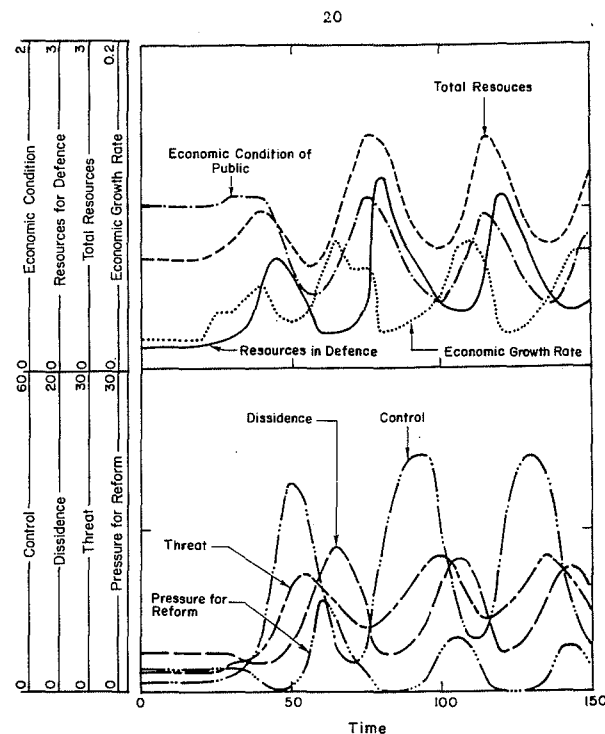
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Figure 4: Economic Growth and Political Instability—
The Case Welfare-minded Totalitarian
Government

If the economic growth rate is higher than a critical level necessary for accommodating the resource expenditure rate when the maximum possible share of resources has been placed in defence activities, the system may reach another seemingly stable equilibrium under a welfare-minded goverment. A high economic growth rate can often be achieved when a country has access to adequate foreign assistance or to natural resources. Figure 5 shows a simulation incorporating such

conditions. The stable equilibrium reached towards the end of this simulation also incorporates a high level of control simultaneously with high levels of dissidence and threat. Consequently, the government must expend a large share of the national resources to contain dissidence. Thus, the economic condition of the public remains quite poor and the level of deprivation is high.
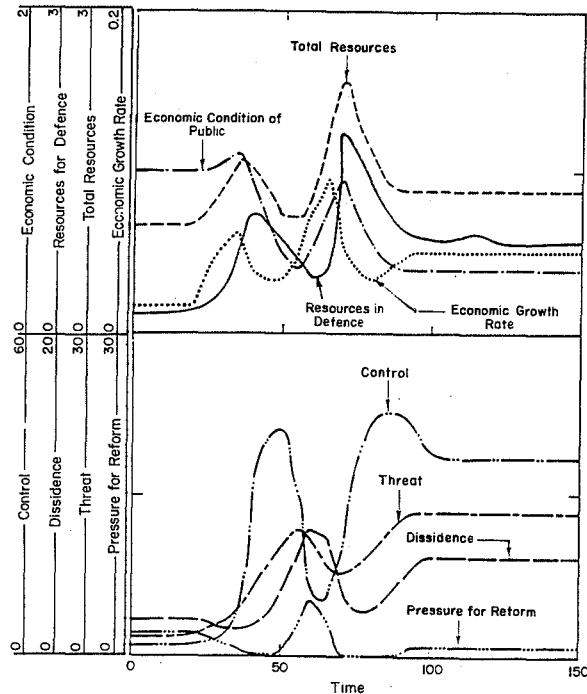

Figure 5 : Economic Growth with Stressful Stability :
The Case of Welfare-minded Totalitarian
Government with a very High Economic Growth
Rate

Conditions similar to the end equilibrium of Figure 5 have been experienced in many developing contries. Unfortunately, such conditions are quite stressful for all parties concerned, even though they appear to incorporate political stability. Furthermore, such stability may end quite violently when foreign assistance or natural resources which have been fuelling high economic growth rates begin to dry up.

6. Can Economic and Political Instability be Avoided?

According to the above analysis, economic growth is limited when resources must be allocated away from the economic activites to meet the rising demand for resources necessary for maintaining government control. At the same time, government control is limited when the increasing demand for resources for control cannot be met because of the deteriorating resource condition. Thus, both economic and political instabilities seem to be linked with the development of a high level of control which develops simultaneously with conditions which are detrimental to maintaining this control. Thus, if the level of control is not allowed to increase very much in the first place, the amplitude of fluctuations in the economic and political variables of the system will be quite small. As such, it appears necessary to limit government control for achieving sustainable economic growth in the long run instead of emphasizing more control for attaining rapid economic growth in the short run.

The increase in control, however, can often go unnoticed by a totalitarian government. The most important indications of the increase in control are the public protests and the pressure for reform, which a

totalitarian govenment may invariably suppress by limiting civil liberties. If left unsuppressed, the pressure for reform will serve as an early warning for the regime to change its modus operandi and to limit control before it grows to an unsustainable level. A legal sanction against suppressing civil liberties can be incorporated into the model by severing the information link between resources for defence activities and civil liberties as shown in Figure 6. This eliminates three powerful feedback loops labeled in the figure. These feedback loops facilitated development of a high level of control in the scenarios discussed in sections 4 and 5. This change in the information structure translates into modifying equation 2 of the model described in section 3 as follows:

$$CL = 1 \quad \text{(a constant = initial equilibrium value of CL)} \quad (12)$$
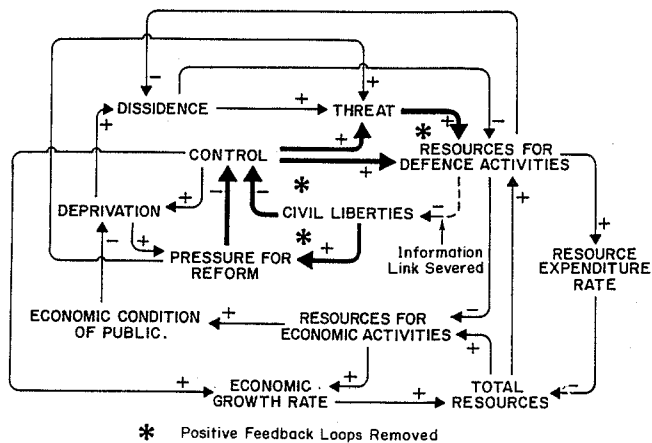

* Positive Feedback Loops Removed

Figure 6 : Information Structure for the Case of a Democratic Government

The behavior of the modified model is illustrated in Figure 7. This behavior is still cyclical, but the amplitude of the cycles and, hence, the intensity of political changes occurring is quite small as compared with the cases discussed in sections 4 and 5. These changes do not entail large scale shifts in resource allocations and hence are not accompanied by large changes in the economic growth rate. Such changes can also take place without violence as they do not involve large shifts in political power that may invoke violence.
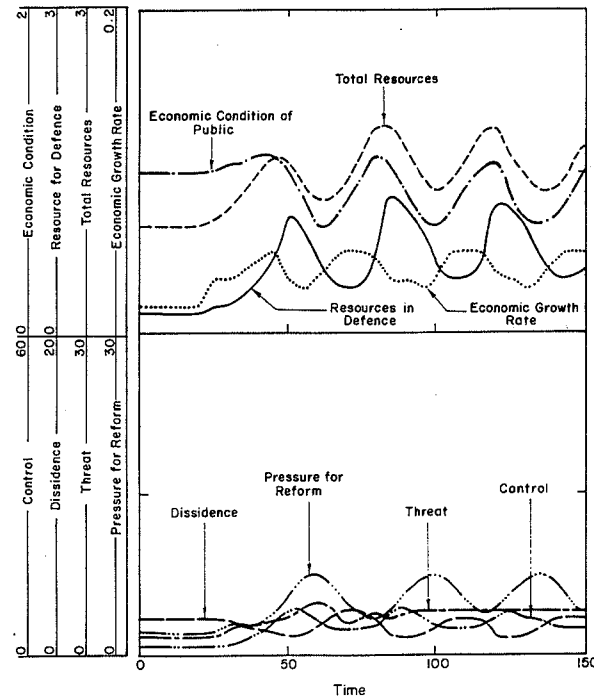

Time

Figure 7 : Economic Growth with Relative Political Stability : The Case of Democratic Government

The economic growth rate achieved in this case may not be spectacular, but it appears to be quite steady. It may be noted, however, that a legal sanction against suppression of civil liberties as postulated here entails the presence of a constitutional right of the people to civil liberties and the inability of the government to ignore this right, which is possible only if the government is a democratic one.

7. Conclusion

The analysis of this paper represents a preliminary attempt to deal seriously with the role played by the social and political factors in determining the long term economic growth patterns in the developing countries. The importance of these factors has often been recognized, but they are ignored in most analyses of economic development.

At the outset, the analysis suggests that a high rate of economic growth, achieved by an apparently stable government exercising a high level of control over allocation of the national resources and enforcing strict codes of public conduct, may not be sustainable in the long run. Welfare-minded dictatorships are found to fare no better than non-welfare-minded dictatorships in their ability to sustain economic growth, unless the former have an access to exogenous resources for maintaining very high growth rates. Even if these dictatorships are able to achieve stability and sustained economic growth, the economic condition of the public may remain quite poor as most of the national resources must be deployed for maintaining control. On the other hand, a moderate growth rate achieved by a government exercising a low level

of control, and seemingly a target for open public criticism, appears to continue steadily.

The paper has attempted to clarify some of the mythical beliefs about the importance of achieving high economic growth rates and about the role of the "stable political regimes" in facilitating this. Albeit, the analysis has many limitations. Firstly, the economic growth mechanisms of the model are rather simplistic and do not incorporate the details of the information structure underlying saving and investment decisions. Secondly, the income distribution aspects and the social class structure have been ignored, which might additionally affect the dynamic behavior of the system. Finally, although, the behavior patterns generated by the model closely correspond to the historical experience of many developing countries, the model has not been applied to any specific case. Additional work is needed to enrich the basic insights provided by this analysis for improving the design of public policies for economic development.

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