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INTERACTIONS BETWEEN PREFERENCES AND
CONSUMPTION IN ECONOMIC DEVELOPMENT

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I. INTRODUCTION

Few would deny that economic growth does not necessarily raise the happiness of people experiencing it. Welfare may very well rise or fall with economic growth. This holds true even if (i) growth is measured in real terms, (ii) growth is taken as the rise of consumption per head and (iii) income distribution has not worsened. Even if all social costs going with growth would be taken into account¹⁾, it would still not be self-evident that there exists in general a positive association between economic growth and welfare.

Despite this observation, most economic theories (and in particular the formal ones) state that utility or welfare is positively related to consumption²⁾.

It is suggested in this paper that the observed lack of correspondence between utility and consumption lies in the fact that (i) consumers' preferences change over time and that (ii) these changes are mainly induced by consumption. Preferences are treated as an endogenous part of the economic (or social) system. Thus a further step is taken away from the traditional assumption of economic theory, that both technology and preferences are exogenously given. Today, however, in many models technological change is of an induced kind³⁾, and it seems only logical to extend the approach to consumers' preferences as well.

Preferences changes are one of the main objects of study by sociologists. In economics, however, there have been but a few attempts at a formal introduction of them into the body of theory (beyond some passing remarks). Among earlier economic writers there is, of course, the notable exception of VEBLEN (1899). Today, names such as DUESENBERY, NURKSE, SIMON, KATONA, GALBRAITH and especially BOULDING must be mentioned. There are also some recent technical papers by PESTON (1967), POLLAK (1970) and v.WEIZSAECKER (1971).

In part II of this paper a formal model of the interaction of preferences and consumption is developed in terms of a set of differential equations. They allow us to derive a typology of societies with regard to how preferences react to changes in consumption and to how the supply of consumption reacts to preference changes. In part III the differential equations are solved, giving a simplified picture of the development process of various "ideal" societies. The conclusion of part IV is that economic growth is neither necessary nor sufficient for an increase of welfare. Moreover, the question whether it would not be desirable for economic policy to influence preferences cannot be evaded. There seems to be a high rate of return in terms of utility to such an activity.

II. A MODEL OF VARIOUS TYPES OF SOCIETY

Various societies can be differentiated with respect to two reactions or inducement mechanisms:

(a) Reaction of aspiration

This reaction describes how the preferences of a society

adjust to changing consumption. There are societies in which rising consumption induces a rise in aspirations. People are never satisfied with what they actually attain but always want to consume more (positive reaction). In another society the opposite may be true: the higher consumption is, the lower are (economic) aspirations, e.g. because the rising standard of living makes people more and more free from economic desires⁴⁾. The change of aspiration A induced by consumption (per head) C can be expressed with the help of a differential equation. In order to allow for development, it is assumed that the growth rate of consumption g_c induces changes in the growth rate of the aspiration level g_A

$$(1) \quad \frac{dg_A}{dt} = \psi(g_A, g_c); \quad \psi_A < 0, \psi_c \geq 0.$$

The partial derivative with respect to the first argument, $\partial\psi/\partial g_A \equiv \psi_A$ is assumed to be negative: The higher the growth rate of aspirations, the smaller will be the induced change of it. The partial derivative with respect to the growth rate of consumption, $\partial\psi/\partial g_c \equiv \psi_c$ may take all values. They can be interpreted in the following way:

"High-Consumption Society"

A higher growth rate of consumption raises still higher the growth rate of aspirations:
 $\psi_c > 0$.

"Society with externally given values"

The values and aspirations are not dependent on consumption but completely determined by forces outside of the economic sphere, e.g. by religious believes: $\psi_c = 0$.

"Anti-Consumption-Society"

The higher the growth rate of consumption, the less interested people become in further consumption: $\Psi_c < 0$.

This may be so for extreme Puritans or Hippies.

(b) Reaction of consumption

This reaction describes whether and how given aspiration levels are transformed into economic performance. This is partly a matter of technological possibilities, but even more strongly - especially in the longer run a matter of basic motivation in the society. Do people see at all that given economic aspirations can be fulfilled by economic efforts thus producing the supply? Are there entrepreneurs who are able to organize production to satisfy these wants?

The dependence of consumption on aspiration can be expressed by a second differential equation, in which the variables are again expressed in terms of growth rates:

$$(2) \quad \frac{dg_c}{dt} = \phi(g_A, g_c); \quad \phi_A \geq 0, \phi_c < 0.$$

The derivative with respect to its own variable, $\partial\phi/\partial g_c \equiv \phi_c$ is again assumed to be negative, thus introducing a stabilizing element. The change in the growth rate of consumption may react positively or negatively to higher or lower growth rates of aspiration:

"High-Performance Society"

Aspirations for higher consumption induce forces which make for a higher supply of consumption: $\phi_A > 0$.

"Non-Economically motivated Society"

Higher aspiration levels have no effect on the supply of effort. No relation exists between what is desired and what is performed: $\phi_A = 0$.

"Extra-Economic attempt for aspiration-achievement"

People attempt to close the gap between aspirations and actual consumption through activities which do not increase supply, but rather diminish it: $\phi_A < 0$. This may be so in some countries where e.g. all kinds of lotteries are used by individuals to attain their economic desires. Another example is given by JOHNSON (1965) who notes that some African nations resort to nationalism as they see no other possibility to reach their economic aspirations.

Various types of society can be characterized according to whether the reaction mechanisms (ψ_c and ϕ_A) discussed above are positive, zero or negative (Table 1). The examples given should serve as a frame of reference. They do not attempt to give an exact description of the dominant features of these societies.

Table 1 near here

III. DEVELOPMENT PATTERNS OF SOME TYPES OF SOCIETY

The system of two differential equations in q_A and q_c can be solved graphically as a phase diagram. Along the line

$$(1)' \quad \frac{dq_A}{dt} = \psi(q_A, q_c) = 0$$

the growth rate of aspiration is constant. The growth rate of consumption is constant where

$$(2)' \quad \frac{dg_c}{dt} = \phi(g_A, g_c) = 0.$$

The system is in equilibrium, where the two lines intersect (see the following figures). The direction of movement can be evaluated for each point in the phase diagram by the following formula

$$(3) \quad \frac{dg_A/dt}{dg_c/dt} = \frac{dg_A}{dg_c} = \frac{\psi(g_A, g_c)}{\phi(g_A, g_c)}$$

To the right and below the line $\psi(g_A, g_c) = 0$ the growth rate of aspirations increases ($dg_A/dt > 0$) while the growth rate of consumption increases ($dg_c/dt > 0$) to the left and above the line $\phi(g_A, g_c) = 0$. The development patterns for various types of society can now be analyzed.

A. "Modern Industrial Society"

In this society an increase of consumption induces a rise in aspirations which in turn induces a rise in consumption ($\psi_c > 0$, $\phi_A > 0$). The two lines⁵⁾ (1)' and (2)' have a positive slope and the equilibrium growth rates (if they exist) are both positive: $g_A^* > 0$, $g_c^* > 0$. The position of the equilibrium depends on two factors:

- (i) The reaction coefficients ψ_c and ϕ_A , and
- (ii) the auto-dynamic properties of the system, given by the distances on the axes. This shows how the system would develop if there were no inducement mechanisms.

Fig. 1 near here

The direction of movement is shown in fig. 1 for some few points. It should be noted that the line $\psi = 0$ can only be crossed horizontally (because g_A must stay constant there), and the line $\phi = 0$ only vertically (because g_c must stay constant). The long arrowed lines show the development patterns of a "Modern Industrial Society" starting from a specified (g_c, g_A) configuration. The figure shows that they all lead to the equilibrium, which is thus stable. Such a society is likely to experience a continuous development process with small changes in growth rates. Probably against intuition, a society in which consumption feeds on aspiration and aspiration on consumption does not necessarily show ever increasing growth rates of both consumption and aspiration. This can only be so if there exists no equilibrium at all. During the adjustment process, i.e. the disequilibrium phase, there are movements of g_A and g_c which one would (probably) not expect if one relied solely on the causal relationship.

Some indications can be derived as to how the various development patterns influence welfare. Utility U is a function of per capita consumption^c and of the aspiration level A

$$(4) \quad U = U(C, A); \quad U_C > 0, U_A < 0.$$

An increase of consumption with constant aspiration level increases utility ($\partial U / \partial C \equiv U_C > 0$). An increase of the aspiration level decreases utility provided consumption stays constant ($\partial U / \partial A \equiv U_A < 0$). It is useful for the following to use the slightly more specific form

$$(4)' \quad U(C, A) = u\left(\frac{C}{A}\right), \quad u' > 0.$$

Aspiration can now be interpreted as a factor which decreases the "productivity of welfare production of consumption goods".

(4)' can be written in terms of growth rates

$$(4)'' \quad g_u = \beta(g_c - g_A); \quad \beta > 0.$$

This equation is graphically represented in fig. 2⁶).

Fig. 2 near here

Any movement with a negative slope clearly either increases or decreases the growth rate of utility. It can now be seen that several development paths in fig. 1 involve strong gains or losses in the growth rates of utility at least for some phases of the process. Above all, it depends on the exact values of the reaction coefficients and the auto-dynamic properties of the system, whether the stable equilibrium involves a rising or falling level of utility:

$g_u^* = \beta(g_c^* - g_A^*) \geq 0$. Note that this holds even if the economic equilibrium growth rate is positive ($g_c^* > 0$).

B. "Pre-Industrial Society; Utopia"

In such a society the growth of consumption as well as the growth of aspirations are exogenously given ($\psi_c = 0, \phi_A = 0$). The system is moved exclusively by its autodynamic properties. The line $\psi = 0$ is perfectly horizontal and

$\phi = 0$ is vertical. The equilibrium is stable. This situation may be roughly true for the Catholic Middle-Ages and most traditional societies of the past. It may also characterize all kinds of Utopia which mostly have no room for mutual adaption mechanisms.

C. "(Early)-Capitalist Society of Puritan Type"

The orientation of values is directed against consumption ($\psi_c < 0$) but there is a strong motivation to attain given aspiration levels by means of economic performance ($\phi_A > 0$).

This is not unlike the prevalent mood of entrepreneurs in England during the Industrial Revolution or in Switzerland up to fairly recently where many people seemed to work for work's sake.

As shown in the phase diagram of fig. 3 the equilibrium is stable with both the growth rates of consumption and aspiration being positive. It depends on the exact location whether welfare increases or decreases continually at this point (compare with fig. 2).

Fig. 3 near here

The movements towards the equilibrium are not direct, but oscillate around it. This points to the fact that a society with the characteristics assumed is likely to exhibit considerable fluctuations in economic growth rates and in its economic aspiration (moods). This will also be reflected in strong social tensions during economic development. If such a country embarks on development from a completely stationary background (i.e. from the origin with $A = \text{const.}$ and $C = \text{const.}$), it first experiences a disproportional rise of economic aspirations which is dampened down in a second phase during which economic growth still increases. In the third phase both consumption and aspiration growth decline, but in the fourth phase the growth of economic aspirations starts to increase again though consumption growth falls further. This is shown by a trajectory in fig. 3. It is interesting to note that changes of aspiration seem to lead changes in economic growth^{?)}. At first sight, this may seem paradoxical in a society which is so much centered on economic performance and which depreciates the value of consumption.

D. "Modern Developing Country"

Some of today's developing countries are characterized by a strong orientation of their value system towards consumption which may partly be due to an "international demonstration effect". An increase of consumption feeds strongly on aspirations ($\Psi_c > 0$). However, people in such societies often do not transform these aspirations into economic performance, so that the desired supply of consumption goods will not be brought forward. As noted above, especially in Latin countries the individuals seek to reach their economic goals by economically non-productive activities, such as lotteries, corruption etc. This deviates energies, time and material resources from production: the growth rate of the actual supply of consumption will be reduced ($\phi_A < 0$). In a way, the characteristics of an "(Early)-Capitalist Society of Puritan Type" are just reversed.

The equilibrium and the trajectories are shown in fig. 4. Again, there is a stable equilibrium. The reaction coefficients and the auto-dynamic properties of the system are assumed to be such that there is an equilibrium combination of negative consumption growth ($g_c^* < 0$) and continually increasing aspirations ($g_A^* > 0$).

Fig. 4 near here

The trajectories to the equilibrium again show oscillations. A developing country with the characteristics mentioned experiences periods of rapid and slow (possibly negative) growth of consumption, and the economic aspirations show similar fluctuations. The model thus predicts that development will not proceed in a regular fashion but rather by leaps and bounds and varying intensity of social tension. The oscillations in fig. 4 go in the reverse direction to

those of fig. 3: in a developing country of the nature specified changes in real growth rates lead changes in the growth rate of aspiration. This would hardly be expected if one considered only the causal relationships (1) and (2), in which it is rather aspirations that seem to determine the development process.

E. "Hippy-Society"

In such a society, people do not try to reach their aspirations by economic performance but rather by other means, such as e.g. contemplation and drugs, which divert resources from economic production ($\phi_A < 0$). If consumption rises for whatever reason, economic aspirations are reduced (e.g. as a sign of protest against the intrusion of materialism into life).

As shown in fig. 5, the equilibrium is unstable. This means that the "Hippy Society" as specified cannot persist. This does not, of course, involve any value judgment on the desirability of such a (hypothetical) society. The trajectories show that it ends up either (i) with continually accelerating economic demands and always falling real growth, or (ii) continually accelerating consumption and always falling economic aspirations.

Fig. 5 near here

This instability of the "Hippy Society" as defined here is not surprising: it cannot persist at any point because its philosophy is designed to change a situation. If e.g. the society starts with both rapid growth of consumption and of economic aspirations (see point g_A^0, g_C^0 in fig. 5 which may be the equilibrium for a "Modern Industrial Society"),

at first both growth rates are drastically reduced. This means that economic effort is reduced and the capital stock is gradually run down. At the same time, advertising and other aspiration-expanding methods are suppressed. But the growth rate of consumption starts to rise again when the growth rate of aspiration is very low and (possibly negative), because then the reverse effect starts⁸⁾: people turn to economic performance, exactly because their high-consumption-aspirations no longer drive them.

It is obvious that neither of the two development processes of a "Hippy Society" (see fig. 5) would go on indefinitely. At some time the acceleration of real growth and of aspirations must come to an end. There will be a "systems break": the "Hippy Society" makes sense only within the "Modern Industrial Society". Once the features of the High Consumption and high performance society have disappeared, the reaction mechanism of the "Hippy Society" can be expected to change.

IV. GENERAL CONCLUSIONS

The following general conclusions can be drawn from the analysis:

1. The analysis of equilibrium and disequilibrium development processes must be separated clearly. The former are closer to the intuitive picture of economic development on the basis of the separate causal relations established. Disequilibrium patterns should not be disregarded as the growth processes observed in reality may belong to this sphere.
2. The relationship between the growth rates of aspiration and consumption shows great variability, especially in

the disequilibrium phase. It is not generally possible to infer anything about their interaction directly from the isolated inducement mechanism.

3. Most important is the connection between the change in (the growth rate of) consumption and utility. The analysis shows that consumption growth is neither a necessary nor a sufficient condition for utility growth. It is not necessary because utility can increase when the level of economic aspiration (cet-par.) decreases: People are happier with what they have if they have lower expectations and demands. It is not sufficient because even when consumption rises, the aspiration level may rise even more strongly, such that people are less happy with the increased bundle of goods.
4. This leads logically to the question whether it would not be a worthwhile instrument of economic policy to influence preferences such as to dampen the rise of aspirations⁹⁾. It may well be that the rate of return of investment into such an activity would yield a much higher rate of return than investment in real capital, in education or even in research. Of course there are many questions to be considered before embarking on such a policy, but it should not be forgotten that in most societies the opposite - namely the upward pushing of economic aspiration through advertising - is allowed.

Table 1: Typology of Societies with regard to aspiration
inducement and performance inducement

		Effect of consumption on aspiration ψ_c		
		$\psi_c > 0$ "High Consumption Society"	$\psi_c = 0$ "Society with externally given values"	$\psi_c < 0$ "Anti-consumption Society"
Effect of aspiration on economic performance ϕ_A	$\phi_A > 0$ "High-Performance Society"	Modern Industrial Society		(Early)-Capitalistic Society of Puritan Type
	$\phi_A = 0$ "Non-economically motivated Society"		Pre-Industrial Society; Utopia.	
	$\phi_A < 0$ "Extra economic attempt for aspiration achievement"	Modern Developing Country		Hippy Society

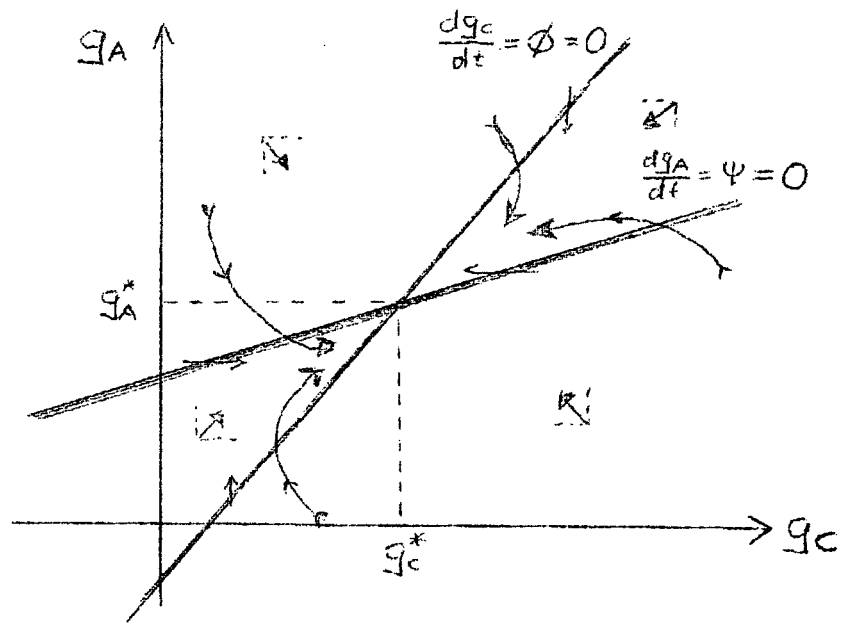


Fig. 1: Development patterns of a "Modern Industrial Society"

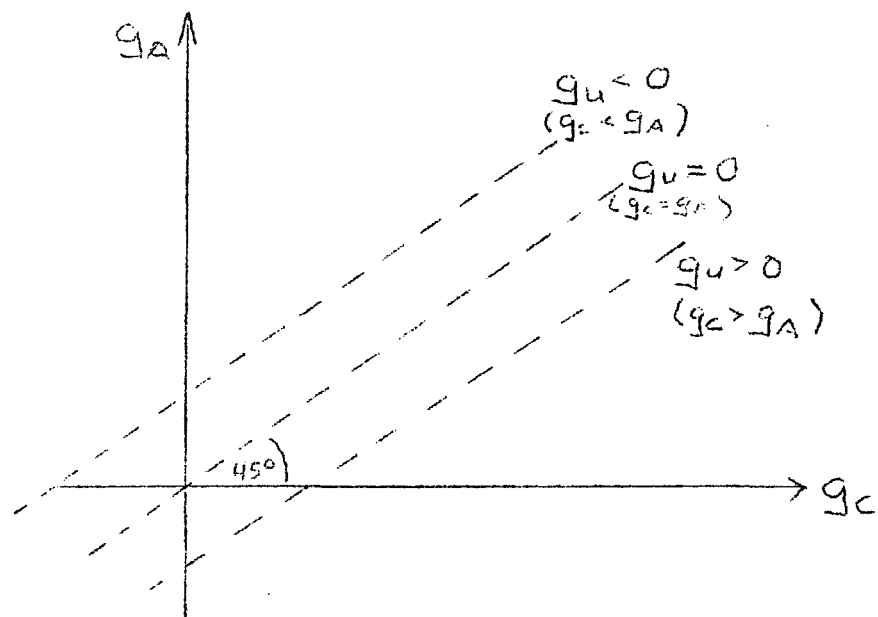


Fig. 2: Iso-utility growth curves depending on consumption and aspiration

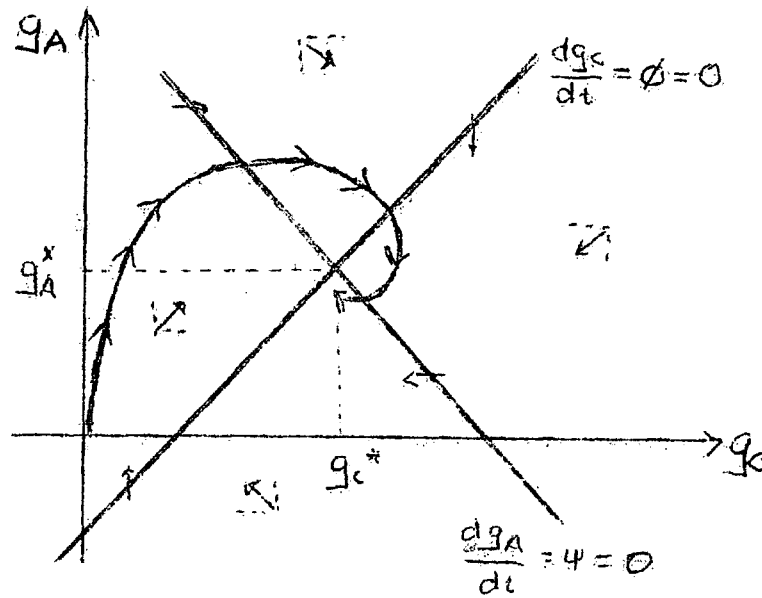


Fig. 3: Development pattern of an "(Early)-Capitalist Society of Puritan Type"

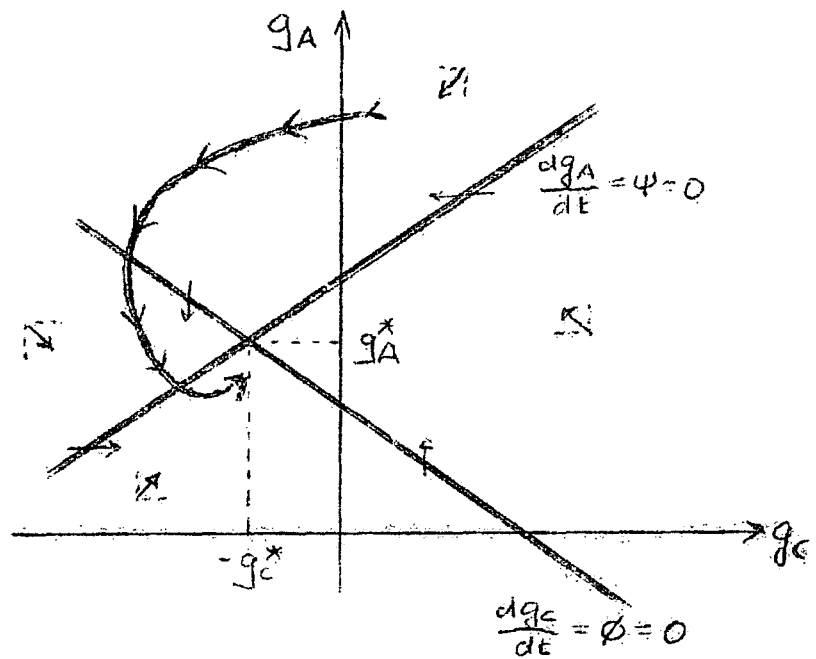


Fig. 4: Development pattern of a "Modern Developing Country"

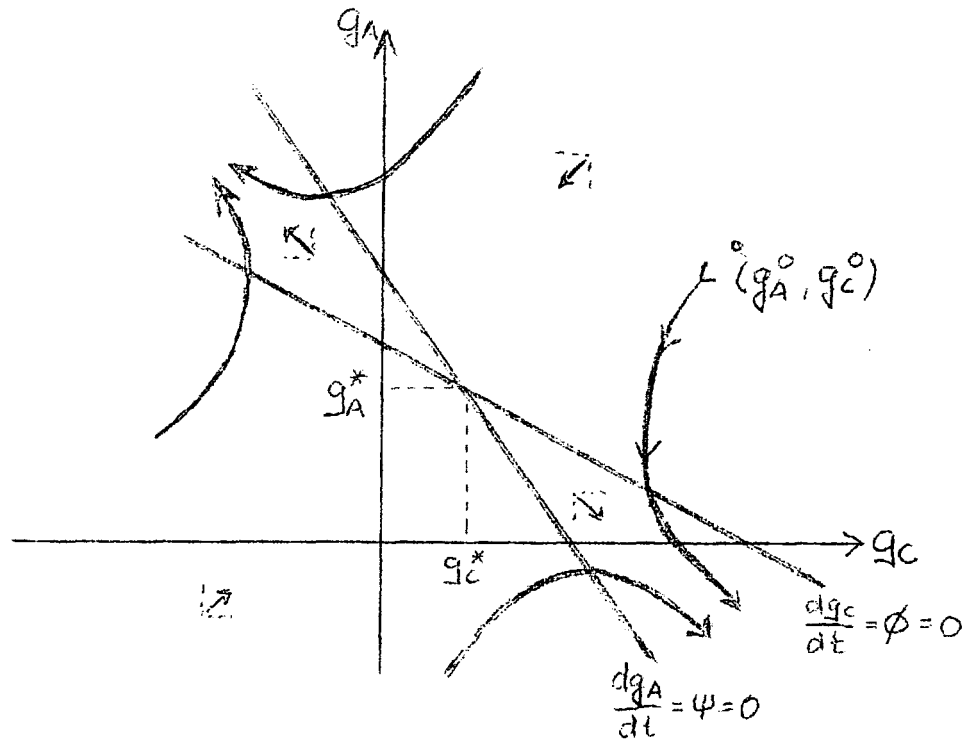


Fig. 5: Development pattern of the "Hippy Society"

Footnotes

- 1) See e.g. KAPP (1969); MISHAN (1969).
- 2) This assertion hardly needs proof. See e.g. KOOPMANS (1967), SOLOW (1970).
- 3) The best known attempts are by KALDOR and MIRRLEES (1962) and ARROW (1962). See also KENNEDY and THIRLWALL (1972).
- 4) Though aspirations belong to the socio-psychological sphere, they are not completely beyond the reach of measurement. The aspiration of a society with regard to the basic economic necessities of life may e.g. be captured adequately by what is defined to be "poverty". This definition is certainly not given by nature and invariable but conditioned by the changing values of people. Economic aspirations of higher income groups can also be measured, especially with regard to some "leading" consumer good (e.g. in the US a private swimming pool).
- 5) These lines are drawn straight only in order to make the graphs easier to read.
- 6) For easier graphical presentation β will be assumed constant, such that (4) is of the form $u = (C/A)^{\beta}$.
- 7) This corresponds to the observation of J.M. CLARK (1917) that "derived demand fluctuates first" due to the acceleration principle.

- 8) It should always be remembered, that the signs of partial derivatives used to derive the types of society work both ways, i.e. irrespective of whether the underlying growth rate rises or falls.
- 9) BOULDING (1950) sees the same possibility on the basis of quite different arguments. He does not follow up this thought, however.

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