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ECONOMIC GROWTH IN A DEMOCRACY:
A MODEL

By

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Economic Theory and Reality

Even the most casual observation of reality confirms that "economic" growth cannot be explained by purely economic factors alone but that political influences are of utmost importance. This is acknowledged by laymen and politicians, practical economists and even by theoreticians.

Growth theory in its present form (1) shows, however, a different picture: political factors are completely absent in growth models. Not only is the influence of voters, interest groups and parties utterly neglected but not even such institutions as the government are usually explicitly taken into account.

Many economists would argue that political factors are important but that it is not the economist's task to consider them; they should rather be left to the political scientist. Such an attitude is no longer tenable once it is recognized that the provision of even purely economic goods and services cannot solely be undertaken by the market but must be supplemented by political decisions.

The case of an economy with only private goods and no externalities is perhaps interesting as a polar case; one could as well imagine an economy in which there are only public or collective goods (2). In reality there are at the same time both private and collective goods and probably the quantitatively largest part of all goods lies somewhere in between. As soon as there is any degree of "collectiveness" in a good, public supply becomes at least a possibility. But public provision leads automatically to political decision making.

An economist who is prepared to leave all these political questions to the political scientist thus restricts himself to a small part of all economic activity.

Infrastructure, Growth and Politics

A growth model is presented in which economic and political factors are closely interrelated and together make economic growth in a developed country possible. Infrastructure (or social overhead capital) provides a close link connecting the economic and the political sphere (3).

Infrastructure and Growth

Empirical studies of economic growth (recently e.g. by Kuznets (4)) have confirmed that only a small part of the increase of per-capita income can be attributed to capital and that by far the largest part is due to other factors such as education and research. The concentration solely on education and research is too restrictive for a general explanation. Besides those two factors there are other equally important components of infrastructure such as the availability of adequate means of transportation and communication, energy provision, the health of the population, water facilities, etc. In a modern economy the pureness of air and water becomes more and more important. Little considered but certainly an essential ingredient of modern economic growth is the efficiency of administration, of justice, and security.

The Provision of Infrastructure

The largest part of infrastructural capital is publically supplied. There are two main reasons for this:

(a) A considerable share of infrastructure is a "collective good"; nobody can be excluded from its use and everybody can enjoy it without restricting anybody else's consumption (5). This applies particularly to the pureness of water and air, to police and justice, and to good administration generally.

Many infrastructural goods are neither purely public nor purely private but show marked external effects, such as education, research and health. They are not necessarily provided by the state because these externalities could be corrected by appropriate taxes and subsidies. A conscious political decision is needed, however, one way or the other.

(b) Infrastructural goods are often provided by the government because it has done so in the past. Looking at reality the importance of traditional arrangements should not be overlooked.

In many countries e.g. the railroads and the bulk of other transportation is owned and run by the state. Especially large scale investments in such sectors are politically determined. This provision of infrastructure by the state has important consequences, especially for economic growth.

Some Relevant Results

Public Provision of Goods with External Effects

It is necessary here to distinguish two different problems. The first is: Does independent adjustment through the market yield an optimal amount of goods with external effects? (This question applies also to collective goods which are a polar case of goods with external effects). Since Pigou it has been assumed that the market provides either too little (when there are external benefits) or too much (when there are external costs). This view has recently been challenged by Buchanan, Kafoglis and Tullock (6) who maintain that this need not necessarily be true and that on the contrary there may be a superoptimal amount provided by the market (when there are external benefits). This, however, has been disputed by Olson and Zeckhauser (7) who point out that outlays for collective goods (or goods with external effects) may well be higher because they are less efficiently provided. The actual consumption of goods with external benefits is always too low; the Pigouvian results are re-enforced.

The second problem is: Can collective action be organized to supply the collective good? (irrespective of whether in an optimal amount or not). The answer is usually given with the help of the "Prisoners' Dilemma"-model (but Buchanan (8) points out that this is often inappropriate). Everybody would be better off when the good is provided through co-operative action than when it is not; but each individually would be better off if he did not share in the costs of its supply, as he can enjoy its benefits (by definition) anyway, i.e. he is a "free rider". As this applies to everybody, there will be a suboptimal supply of collective goods and a concealing of true preferences.

It will be seen that both problems look somewhat different when an explicit political system is assumed. It may be already noted here that voters have no reason to understate their preferences for public goods in polls because in this decision mechanism there is no co-operative behavior (no repeated experiences of the same "play") nor strategic bargaining as in small groups.

Cycles in the Provision of Goods with External Effects

The provision of such goods does not proceed regularly under independent adjustment through the market. There is either an excess supply or a deficiency (see Buchanan and Tullock (6)). When for each individual the likely cost of the absence of such a good (e.g. shots for immunization) is greater than the cost of providing it oneself, a large number of people decide to supply the good by independent action which leads to an oversupply as each one can benefit (to a certain extent) from the provision of others. Once this is recognized then every individual decides not to supply it any more which leads to an insufficient supply of this good. This makes it again profitable for everyone to provide the good.

It will be seen that a somewhat similar cycle of deficient supply and of excess supply of publicly supplied goods (infrastructure) can be observed when the political system is explicitly specified.

Public Provision of Private Goods

This is the main area where pressure groups seek influence. Though it is also possible that interest groups may form to provide public goods this is much more difficult and hence less likely than when the objective is to get private goods for a specific group. It is not possible to organize and to maintain a pressure group unless there is at least some (divisible) private good that exclusively accrues to participants in the group or outright coercion (Olson (9)). If there is only a collective good provided by the action of the interest group nobody would have any incentive to join.

This difficulty of forming and maintaining pressure groups when dealing with collective goods does not mean that no action is taken when the demand for such goods rises. Then it becomes more and more profitable for the interest group to put pressure on the government to supply it, because the benefits accruing (among other people) also to the members of the group are rising. It would be much more expensive usually to supply a scarce public good within the pressure group.

Because of limitations of space the role of interest groups in a growing economy is in the following model largely left out of account.

It must be noticed that there are not only pressure groups which may push for increases in infrastructure when the need arises but

also politicians who are looking for opportunities to win votes by championing such unfulfilled wants. The role of the politician can in this respect be compared to the entrepreneurs who are also on a continual search for profit opportunities (see Wagner (10)).

The Political System

For simplicity it is assumed that there are only two major parties in a democratically organized country. Regular elections in fairly short intervals are held. The party that gets a majority of votes forms the government, the other the opposition. It is further assumed that the behavior of the parties can adequately be described by the vote maximization hypothesis (Downs (11)). This entails that both parties seek to occupy the median position on each issue, because any other position would enable the opposing party to gain a majority in the elections.

Down's model of vote maximization considers, however, only one aspect, namely how parties adapt to voters' preferences. But there is also a relationship going in the opposite direction, where parties seek to influence the voters' preferences. This "leader" function of parties is often stressed by politicians themselves.

The Cyclical Model

Sufficient Infrastructure

Imagine a situation in which a country has an ample supply of infrastructural goods. The economy is growing at a satisfactory rate because the underlying basis for market transactions is adequate. There are no serious bottlenecks in transportation or administration which would prevent firms to invest with a high rate of return. Price rises are likely to be moderate as technical progress and labor productivity increases are high.

In this situation the government party would be unwise to make large infrastructural investments because no votes could be gained by such a policy. The voters attribute the satisfactory economic growth rate and (relative) price stability to direct factors such as high entrepreneurial ability and spirits. It is a typical characteristic of infrastructure that its contribution to growth only becomes evident when it is scarce. When such goods are available in sufficient amount they are taken for granted and nobody even thinks of considering them as part of infrastructure. The range of goods taken to

be infrastructure is thus itself a function of economic conditions.

The opposition party has no incentive either to challenge the government on the infrastructural issue as it would find no interest for this with the voters.

The two opposing parties occupy ideological conditions very near to each other on all issues (e.g. income distribution) because for both of them the median secures most votes, irrespective of the distribution of voters on the issue scale. It is on these issues (which can be taken together as one "traditional" issue) in which the government party has been more successful than the opposition party in finding the most favorable position.

This situation of an adequate supply of infrastructure cannot obtain for an extended period of time because the economy is progressing very rapidly exactly because there is an oversupply of infrastructure which is gradually used up. Are there any forces which make the infrastructural capacity grow to keep pace with market goods provided in the private sector?

Scarcity of Infrastructure

When the economy outstrips the growth of infrastructural capacity the shortages caused will at first not be apparent. Unlike industrial capacity there is much less of an abrupt barrier beyond which infrastructure can be said to be scarce. A small shortage is barely visible as it affects at first much less the quantities than the qualities of infrastructural services which are more difficult to observe. Infrastructural scarcity hence only becomes a political issue at all when it has reached a certain minimum magnitude.

(This may be compared to a good which is provided by a well-functioning market. There, price changes are a very efficient mechanism to ensure that no such shortage arises by both choking off demand through a higher price and increasing supply by inducing an inflow of more resources. The goods provided by the government are not subject to this equilibrating mechanism.)

Once the shortage of infrastructure becomes apparent, however, the new issue pulls the two parties apart. Their motivations now diverge sharply.

The Government's Policy

The government is in a difficult situation. If it could and would

occupy the median position of voters' opinions on this new (infra-structural) issue as well as on the old ("traditional") issue all the time it would be safe and win the next elections. There are various reasons why the government party is unable to follow such a strategy:

(1) The government is reluctant to admit that there is a deficiency of infrastructure because this amounts to admitting that the necessary steps have not been taken before. This discredits the party especially when raised by the propaganda of the opposition.

(2) Infrastructural investments typically have an extremely long gestation period. The government knows that when the infrastructural scarcities become apparent (and only then the issue is of interest to the voters) it is already too late to change the situation before the next elections. It would only mean that a lot of money would have to be spent without any improvement of the deficiency for a considerable period to come.

(3) Voters' preferences on the infrastructural issue are, especially at the beginning, quite unclear and unspecified. The prescription to occupy (roughly) a median position cannot be followed easily because the vote distribution is unknown. The government must be careful not to take a definite stand on a new issue. If it were wrong (which is well possible) the opposition could easily occupy the now much more clearly revealed median position of the vote distribution and beat the government in the next elections. It is therefore a safer policy for the governing party not to commit itself on a yet unclear issue.

When the first signs of an infrastructural shortage arise, the government hence does not take any strong and quick action to remedy it.

(4) Even more important is that the government will not be able to separate the "traditional" issue from the new issue of infrastructure. The median position on the first set of issues necessarily involves ideologies at least unrelated to, if not actually opposed to, the public supply of infrastructure. The government party cannot therefore adopt the new issue without disassociating (at least in voters' minds) to a certain extent from its median position on the "traditional" issue. There is a trade-off between the new and the old issue.

If the government moves away from its winning position on the old issues the opposition might step in and offer itself as the true champion of the "traditional" issues. This may lead to a very quick defeat of the government party, before the infrastructural question

has really gained much importance.

(5) The old position on the median of the "traditional" issue-scale has the great advantage to actually have been proved successful for the government party. This cannot be said for any other party. There is strong opposition within party ranks to change a winning policy, even when circumstances are different. It is therefore unlikely that the governing party is very flexible in adopting new issues. Moreover this might confuse the voters.

A rational policy of the government must be to stress as much as possible the importance of the "traditional" issue (where it is confident to occupy the winning position) and to discount and even to deny the existence of infrastructural scarcity. Instead of spending the huge amount of money necessary for infrastructural investments, a rational government rather uses its resources to favor interest groups and specific population segments by providing them with private goods ("election presents"). This has the advantage of allowing much more precise estimates of benefits to the governing party as well as immediate returns.

The Opposition Party's Policy

The opposition follows a completely different policy. It knows by experience that obviously its position on the "traditional" issue can attract only a minority of voters. Its only chance lies in the new issues coming up.

The opposition is with respect to any new issue in a much better situation than the government because

- (i) It has no winning position on the "traditional" issues which restricts its movement.
- (ii) A change of position on any issue does for the opposition (unlike the government) not mean that a former policy is therefore seriously discredited.

The opposition party's strategy will be as follows:

- (1) The importance of the new issue relative to the "traditional" issue is stressed. This means that the weight of the old issue in voters' considerations diminishes making the governments winning position less valuable. On the other hand it increases the chance of the opposition party to win the next elections if it manages to get a better position on the upcoming infrastructural issue.

(2) The opposition makes a strong effort to influence the vote distribution (curve A in Fig. 1) on the new infrastructural issue. It must endeavor to move the voters away from the moderate stand of the government (G) to a new more pointed preference distribution (curve B) around the opposition's own position (O).

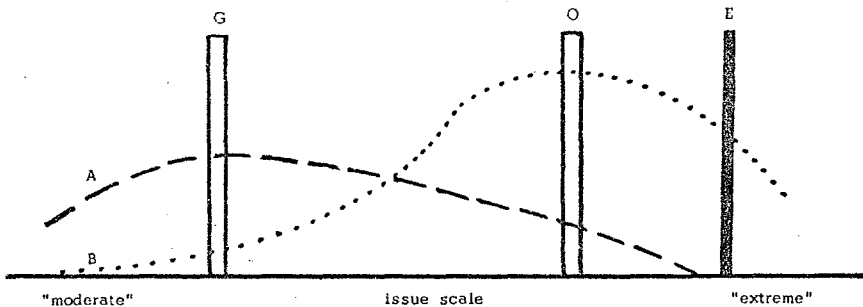


Figure 1 Vote Distribution on Infrastructural Issue

This swing is not only due to the opposition propaganda but reflects also the underlying scarcity of infrastructural facilities which the voters experience themselves.

An interesting point may be noted here. The opposition does not move itself to a very extreme position (such as E) on the new issue because it knows that it must occupy a median position to win the elections. A too extreme ideological move of the opposition would alienate many voters because for many of them with still moderate views the government's position would then be preferable. On the other hand the opposition party must be careful not to allow any third party to arise which would be more extreme on the new issue than itself (with a position e.g. at E) and which would capture many votes to the right of O. It can therefore be expected that the opposition advocates a strong increase of outlays for infrastructure without going to the extreme. It can indeed be observed in reality that parties (and candidates) out of power challenging the government are themselves less extreme than many of their followers. These opposition parties know that it is advantageous for them to have extremist and loud supporters who pull voters' preferences beyond their own position (thus ensuring for them a winning median position) but they are careful never to endorse them officially.

The Worsening Deficiency of Infrastructure

Thus, in an economy in which there is initially an adequate supply of infrastructure and therefore a satisfactory rate of economic growth infrastructure does not keep pace with demand because the government party and the voters at first do not notice the deficiency. When it becomes evident the government is rational in not taking any action to remedy it. When the lack of infrastructural capital grows the voters feel restricted in their consumption (e.g. because the air is dirty, the water and electricity provision break down, traffic jams are regular and streets are insecure). Businessmen experience that more and more real capital is needed to produce the same volume of business, i.e. the capital coefficient for private investments rises and the rate of profit falls. Due to the deficiency of infrastructure the market sphere cannot grow unimpededly but hits bottlenecks of infrastructure again and again.

When in the provision of private goods such a disequilibrium arises there are likely to be automatic market forces which tend to increase supply and reduce demand. It could be expected that the lack of infrastructure is corrected by the provision of these public goods by consumers and businessmen. This is, however, only possible to a limited extent, because the collective character of most infrastructural goods prevents a provision by the market; the basic "free rider" problem is still in force.

Even in the infrastructure shortage caused by the (rational) inaction of the government party is slightly improved upon by the private provision of formerly publicly supplied infrastructure, the new infrastructural issue becomes more and more important in voters' preferences. The dissatisfaction with the government is enhanced by the worsening of the general economic situation. The growth rates decline further as the capital coefficient keeps on rising. As labor productivity advances are equally getting progressively difficult to achieve with the increasing deficiency of infrastructure, price rises are likely to accelerate.

The Change of Government

This worsening of the economic situation and the lack of infrastructural facilities reduces the majority of the governing party with each election as it is made responsible by the voters. The opposition party finds its propaganda efforts successful; it makes itself the champion for a definite increase of infrastructural capacity. The government finds itself more and more trapped in a vicious circle. It is bound to loose the elections whatever action it takes and so

has to hand the power over to the opposition.

Excess Supply of Infrastructure

When the opposition party gets into power it must fulfill the promises made during the election, because otherwise it would lose its credibility with the voters. This is often overlooked because there seems to be very little change in policy after a new party takes over. This is true insofar as there is no reason for the new government to change its policy with respect to the (former) "traditional" issues. Finer (12, p. 51) states e.g. for Britain: "... that party which wins a majority of seats is firmly committed to honour its programme ... the vigorous discipline of the majority party assures that the promises will be carried into law".

The new government will thus take decisive action to increase infrastructural capacity. There are various reasons why this change of government not only increases infrastructural capital strongly but even leads to an excess supply:

(a) It was only through the mobilization of a majority of voters that the lack of infrastructure could be remedied. This involved a strong change of voters' ideologies with respect to the functioning of the market and the role of infrastructure. One "conventional wisdom" is exchanged for another (now it is that infrastructure is the absolutely dominant factor in growth). This new "conventional wisdom" cannot be subtle because otherwise it would never have been adopted by a majority. Voters' preferences tend therefore to be rather crude and extreme on this issue.

The new government which must continually occupy the median position on the infrastructural issue (which now has become the "traditional" one) must take this into account and therefore will undertake more investments in this area than it would be necessary from a purely economic point of view.

(b) After the new government has taken over a considerable amount of time elapses until there is any improvement of infrastructural capacity felt by consumers and businessmen. The voters, however, expect immediate results and keep on pushing for action. The government is compelled to invest just for investment's sake with little regard to exact needs to show that it is really "doing something".

Once these investments are completed the resulting oversupply of infrastructure leads to an upswing in the rate of economic growth

and there is likely to be stability in prices.

The Political Cycle

While a lack of infrastructure can only be corrected in a democracy by a change of the party in government this is not always necessary to balance an oversupply of infrastructure. There is thus no exact symmetry between excess demand and excess supply. Two possible courses can be envisaged:

(a) The improvement of economic conditions following the completion of infrastructural investments brings new issues - such as income distribution - to the forefront of the political scene. As infrastructure is abundant for the time being, there is no interest on this issue with the voters. The government which has the median winning position on this latter issue will loose votes and some future election because its position on the now "traditional" infrastructural issue has less and less weight in voters' preferences. Again it is not free to select a winning position on the upcoming issues for the reasons indicated above. It is especially a burden to the government that it is in voters' minds closely associated with public supply. With the adequate provisions of infrastructure the market operates now successfully again, a fact that is stressed by the opposition who identifies now with a "free market economy". Charges of wasteful public spending will become prominent, and the party in power looses votes and finally the majority in elections. The oversupply of infrastructure is solved by a change in government.

(b) Such a change in power comes about more directly when there is a deficiency in infrastructure than when there is an oversupply. In the first case there is a general worsening of economic conditions due to the lack of infrastructural facilities, while in the second case there is on the contrary a marked improvement of economic conditions. The voters are hence satisfied with the government at least in this respect and it is doubtful if the opposition is able to give enough prominence to other issues in which the government has no winning position.

Under these circumstances the government stays in office. If it is flexible enough it may be able to slowly reduce (relative) expenditures on infrastructural projects. Nevertheless, the attempt of the government to move away from the now unimportant "traditional" issue of infrastructure gives the opposition a fair chance to win the elections because on new issues it has as much possibility to occupy a winning position as the government.

The party in power does not have any a priori advantage on upcoming issues in a democracy; it is rather burdened by its own past behavior.

Both courses seem to lead to the same result, namely that the excess supply of infrastructure also leads to a change in government. The cycle starts again. The new party in government rationally neglects infrastructural expenditures and this creates again a deficiency in infrastructure.

Concluding Remarks

(1) The model presented is highly simplified. It is sufficient to mention just two instances.

(a) It is assumed that the excess of deficient supply of infrastructure can be considered in the aggregate and that all components are roughly affected in the same way.

(b) There is only one - but important - reason considered why a change in government comes about. Besides these economic factors there are naturally others.

(2) The theory developed forms a closed cycle. The economic disequilibrium with respect to infrastructure leads within the political system to a change of the party in power which in turn affects the supply of infrastructure.

(3) The price mechanism which (ideally) leads to an automatic removal of disequilibria of excess demand and supply is supplemented by a theory of the political provision of public goods, here of infrastructure. The mechanism that balances demand and supply of these goods works less quickly than the market mechanism. It also does not react smoothly as the price mechanism but rather in jumps, because the forces that lead to an eventual change of the party in government must build up. Economic growth is not a regular process in a democracy. There are necessarily cycles in expansion that are the result of the interaction of economic and political factors.

(4) Deficient supply and excess supply of infrastructure (and other publically supplied goods) is nevertheless efficiently solved in a democracy by the change of governing parties. One of the essential features of a democratic system is that a change of the party in power can be effected without disruption of the whole political and perhaps social order. This is certainly not true in an

authoritarian system where a change in the party or man in power is only possible outside the established political order.

The price mechanism and democracy hence show similar features, each allows the solution of disequilibria within its own framework.

In the sphere of the "Economic Theory of Politics" the analysis shows that the one-issue model of Downs must be extended in the following way:

(5) More issue dimensions must be considered to make the vote-maximizing model better applicable in reality. This has been done by Gordon Tullock (13).

It is, however, important to recognize that the movements on each scale are not independent from each other but that there are "trade-offs" which make it impossible to simultaneously reach the winning position on each issue. These "trade-offs" are different for the government and for the parties out of power, the latter typically having less severe restraints.

(6) The importance of issues varies in voters' utility functions over time due to changing economic conditions. Winning positions on various issues are thus not always equally useful for vote-getting.

(7) In the vote-maximizing hypothesis the distribution of votes on the issues is given and the model predicts the resulting positions of political parties on this issue. The parties are seen as "followers". This is only one side of the political process. In a democracy each party is free to try to influence voters' distribution which is clearly most easily done with new issues in which there is not yet a "conventional wisdom" developed.

A party must consider by rational calculation if it is worth while to try to shift voters' preferences on a new issue. It is through this interaction of the "follower" role of parties with their "leader" role that economic and political reality can be explained.

NOTES

1. Compare e.g. F. H. Hahn and R. C. O. Matthews, The Theory of Economic Growth. A Survey. Economic Journal 74 (1964).
2. James M. Buchanan, The Supply and Demand of Public Goods. (Forthcoming)

3. I have developed a similar model (concentrating on different aspects) in an article in German. Bruno Frey, Ein politisches Modell wirtschaftlichen Wachstums. Kyklos 21 (1968), Fasc. 1.
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James M. Buchanan and Gordon Tullock, Public and Private Interaction Under Reciprocal Externality. In: The Public Economy of Urban Communities. Ed. by Julius Margolis. Washington, D.C. and Baltimore: Resources for the Future 1965.
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10. Richard Wagner, Pressure Groups and Political Entrepreneurs. In: Papers on Non-Market Decision Making, ed. by Gordon Tullock 1966.
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13. Gordon Tullock, Toward A Mathematics of Politics. Ann Arbor: University of Michigan Press, 1967.