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PUBLIC GOODS' REAL EFFECTS: CORRECTION OF THE CURRENT TEXTBOOK THEORY

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ABSTRACT

The text first deals with the definition of the concept of public goods and discusses reasons and consequences of public goods existence. In the second part, it then deals with possibilities (necessary conditions) of their production by private sector. It shows that provided the conditions given in the second part are fulfilled, the private production of public goods is more efficient than their production within the public sector. Their financing from public budgets is seen problematic and therefore this alternative is only accepted as the last resource.

JEL CLASSIFICATION & KEYWORDS

| H40 | Public Goods | Public Budgets | Externality |

INTRODUCTION

Definition of Public Goods

Public goods are goods use (consumption) of which no one can be effectively (technically) excluded from based on the fact that the use is not paid for (respectively, the exclusion is not theoretically impossible, but the involved costs make its application virtually unattainable).[1] This results in the fact that should such goods already exist (i.e. have already been created), any (potential) consumer can use them free of charge as their owner is not in reality capable of collecting the fee charged for their use (anyone can thus become the so called "free rider"), which further results in the inability of the (potential) producers to finance the production of such goods through their selling or leasing.

Public Goods in the Current Mainstream of Economic Theory

Standard economic theory therefore expects that (private) corporations will not produce public goods at all (or if so, thus in an insufficient amount) as they are not able to generate any (respectively not sufficient) revenue from their production. It further states that people would be willing to buy a certain amount of such goods at the cost price (but they are not willing to pay the price the goods would have to be sold for; price which would, with regards to the difficulty of excluding the non-payers from the consumption, have to be extremely high; i.e. transaction costs of the sale, calculated as the difference between the production and selling prices are excessively high). Production of public goods would thus be effective at the cost price, but not at the price the goods need to be sold for at the market (i.e. at price covering apart from the production costs also the extremely high selling costs). However, if we were able to remove the excessive transaction costs, the profit from these goods would be higher than that from the alternative use of the respective resources. Therefore, it would be beneficial (effective) to produce the goods in the given scope. Mainstream economy then affirms that these high transaction (selling) costs can (only) be removed by financing the production from public budgets (i.e. from taxes collected based on different criteria than is the consumption of the respective goods) and therefore these goods must be supplied (financed) by a public corporation.[2] This is,

[1] Standard economic theory also accentuates the second inherent characteristic - the so called indiscriminate (non-rival) consumption, however, we are strictly going to focus on the non-excludability of public goods.
Public good is a technical term: goods that comply with the given characteristic (i.e. goods where the transaction costs on exclusion of the non-paying users are too high) are by definition public goods; and conversely, goods that do not comply with it (respectively, where the transaction costs on exclusion of the non-paying users are relatively low) are by definition private goods, irrespective of who owns or produces the goods (i.e. both public and private goods can be in reality owned or produced both by private and public subjects). We stress that this division is entirely objective (positive) and thus independent of normative will of any given individual or group (irrespective of its size). This means that nationalization does not change private goods into public (or conversely, privatization does not change public goods into private). Private goods remain private post nationalization, only owned (produced) by a public corporation. We can see that the term "public goods" is slightly misleading as it can suggest that the goods are publicly owned which is not their characteristic by definition. Let us thus examine the history of the term.
The term has been introduced in the economic theory in its (virtually) current form by Samuelson (P. A. Samuelson: Pure Theory of Public Expenditure, Review of Economics and Statistics, XXXVI, November, 1954, p. 387-389) and gained recognition namely thanks to his (regularly updated and in 1950s and 60s world-dominant) textbook "Economics". Samuelson's concept has gradually been accepted by virtually all authors of (mainstream) economic textbooks. Samuelson himself in the quoted textbook states as the basic characteristic defining public goods the so called indiscriminate (non-rival) consumption and the non-excludability of the non-payers from the consumption considers its derivative (*Public good: A commodity whose benefits may be provided to all people at no more cost than that required to provide it for one person . The benefits of the good are indivisible and people cannot be excluded from using it.* Samuelson P.A., Nordhause W.D.: Economics, 13. ed., Mc Graw-Hill Company, 1989, pg. 980). Later the understanding shifted considering the two characteristics independent.
Samuelson, however, does not primarily postulate the theory of public goods as a positive description of the social (economic) reality, but as a normative apologia of the existence of the public sector and the role of the State in economy. Public goods are to him a commodity that should be (a priori) provided by a public corporation (state or municipality - hence the naming public goods) and his (economic) theory should add to it the character of the scientific objectivity. As will be shown in this article, focusing solely on the positive part of Samuelson's theory, we can see that it does not necessarily support his normative conclusions (definitely not in the majority of cases). Samuelson himself is aware of this as he replaces in the definition the positive (objective) technical non-excludability of the non-payers from the consumption of public goods with the normative (subjective) moral non-excludability.
Problems with the positive approach to public goods is in the economic mainstream noted mainly by Public Choice that substitutes the original definition with the one that defines public goods as those supplied by a public corporation (State) and refuses attempts to clarify, using of the economic science, which goods should or on contrary should not be included (this will simply be decided by the mechanism of Public Choice). However, we refuse this approach as it does not provide an explanation of the influence of the public sector on wealth and allocation and coordination effectiveness of the social (economic) system and on the possibility to apply the economic science in this area. On contrary, the above definition of public goods based on technical non-excludability of the non-payers from consumption (i.e. a positive reformulation of, by all current mainstream textbooks generally used, normative definition given by Samuelson using the moral non-excludability), respectively its generalization via Coase's theory of transaction costs (i.e. as goods with costly exclusion of the non-payers from consumption), provides us with a meaningful (reasonable), starting-point for examination of these questions; as it is based on, from the economic perspective, relevant characteristic of real commodities, i.e. on the ability (or disability) of their owners (producers) to charge for their consumption and thus finance the production through their selling or leasing. The consequences of existence of such public goods will be explored further.

[2] *Because private provision of public goods will generally be insufficient, government must step in to provide public goods.* Samuelson P.A., Nordhause W.D.: Economics, 13. ed., Mc Graw-Hill Company, 1989, pg. 45).

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however, a normative conclusion, that does not necessary result from the existence of public goods.

Consequences of Existence of Public Goods

The only things really resulting from the fact that the production of public goods cannot be financed by their selling or leasing are that such goods:

1. must be financed through different resources (which as will be shown later do not necessarily need to be public budgets, respectively taxes), or
2. a) will only be produced in the scope in which the marginal costs on their production equal to the marginal profit of the producer as their consumer (and profits of third parties are thus a positive externality); in which case the entire social production of such goods is really insufficient, or

   b) will not be produced at all (which means that the marginal use of no potential producer from his/her private consumption of these goods will not exceed the given marginal costs for any given scope of production and in this case either:

   – the sum of potential external profits from the given amount of these goods would be big enough to exceed its (marginal) production costs so it would thus be socially more effective to get the particular resources from different use and produce these goods in the required scope, or

   – the sum of the potential external use from any given amount of the goods would not be big enough to exceed the (marginal) costs for their production in which case the goods should not be produced as the use of the resources for the production would be less effective than their use for alternative purposes.

Options of Financing Public Goods - Public Budgets

The first option we think of when discussing possibilities of securing the production of public goods (and in a way the only one suggested by the mainstream economy) is their financing from public budgets.

In reality we should consider this option last as:

1. it can be applied even if no other options remain available,
2. it is problematic both from the fairness and economic effectiveness points of view (see below).

To grasp the problems occurring when financing goods from public budgets, we have to realize that as the public good is not in reality sold,[3] it is virtually impossible to identify the level of the demand for this good:

- the only known level of the demand (i.e. the demanded quantity) Q_D is at the price of P = 0.

To set the socially optimal quantity of the given good, we, however, need to know the level of Q_D (MU) when $P = Q_S$ (MC). This generated an objective allocation problem: (out of the principle) it is not possible to set either the exact volumes of this good that are to be produced or who is to consume them. This lack of knowledge of the real social (market) demand can, to a certain extent, be subsidized (approximated) by a political choice. Nevertheless, the transmitting of information about the beneficiaries (and their costs) through political channels is not (and out of the principle cannot be) as effective as their transmitting through market. Therefore, there will inevitably be wasting involved (i.e. wasting of scarce resources on projects instead of which alternative ones should be realized).[4] To conclude, financing the production of public goods from public budgets should only be applied when no other options that would provide a better solution of the above discussed problems are available, and when it can be, at the same time, legitimately expected that the ineffectiveness resulting from the political choice on the extent of production of the given good (and hence the amount of used resources) will be smaller than the loss of the benefit (and thus the ineffectiveness) in the case of the non-existence of the sufficient amount of this good (or even its entire non-existence) resulting in the use of the respective resources for different purposes.

Options of Financing Public Goods – Selling their Complements

Another option,[5] of arranging for the production of public goods is financing them through selling or leasing other goods that are complementary to the public ones. It is, however, only possible (and already applied in practice) if such a good exists and:

1. is not itself the public good (i.e. exclusion of the non-payers from its consumption is relatively easy),

At this point, it is important to note two more things:
– This normative statement is presented as a positive result of a scientific examination, a conclusion which, in reality, does not inevitably result from the existence of public goods (in reality there exist public goods that are fully supplied by private corporations - there is no need to subsidize their production from public budgets: e.g. private TV and radio broadcasting, etc.). Samuelson is aware of this as the word "generally" is used in his statement.
– According to Samuelson (as well as a vast majority of other economists), public goods are not to be produced by public corporations, they should only be financed (purchased) by them - as we can see for example in the following quote: *In buying public goods like national defense or lighthouses, government is behaving exactly like any other large spender. By casting sufficient dollar votes in certain directions, it causes resources to flow there. The price system then takes over and ensures that government-purchased lighthouses or fighter aircraft get produced.* (Samuelson P.A., Nordhause W.D.: Economics, 13. ed., Mc Graw-Hill Company, 1989, pg. 45)

[3] Taxes that form a major part of the public budgets' yields (and from which the production of the public good is thus, in this case, paid) are a compulsory payment that the payer (the taxpayer) has to pay irrespective of his/her approval or disapproval of the way (or the extent) in which these funds are used. The relation between his/her costs and benefits is thus disrupted. Taxes are collected based on different criteria than is the consumption of the supplied goods or services (which on one hand allows for eliminating the transaction costs on selling public goods and allocating resources for their production, but on the other, it creates the allocation injustice as well as non-effectiveness).

[4] Reasons are namely:
– separation of the payment paid by the citizens/consumers (the compulsory tax) from the benefit (amount of the good) that is obtained for the payment (in fact other people than those who in reality finance it, decide upon the purchase of the good - see comment 3),
– moral hazard of politicians and clerks (resulting from the information asymmetry - see the following point),
– rational ignorance of the citizens/consumers (potential benefits of voters, non-politicians, from politics are dispersed and from each individual's perspective lesser than the effort potentially involved in obtaining a relevant knowledge of the given problematic),
– hypertrophy of the problem principal-agent (resulting from the totalitarian character of the public sector caused by the compulsory membership, the impossibility of the citizen/consumer to depart and the consecutive weak real controlling of the public management by the citizens - see also the preceding points),
– bureaucratization of the public sector (namely due to the information dominance of the clerks, the politicians mostly do not purchase the outputs but the inputs, i.e. not the production, but its immediate producers - the clerks; however, the inputs of the public sector, for reasons given above, are not directly linked with its outputs that are consecutively supplied to citizens - consumers/taxpayers).

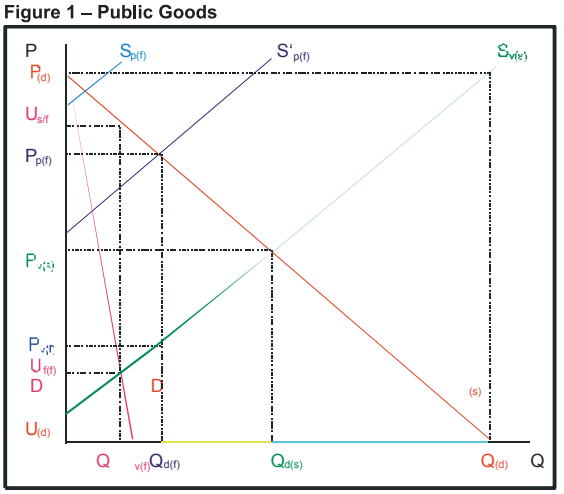
[5] Respectively, the only other, closely-enough, relevant option (more alternatives could probably be found, but the only one we identified is financing through donations which is irrelevant to our purpose and therefore will not be explored further).

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2. is to the public good virtually perfectly or (at least) very closely complementary.[6]

This alternative should, however, be favoured over the one of financing it through public budgets - for the same reasons we favour market coordination over central planning: it is more effective. The production of the public good is thus not linked with the above discussed problems with public financing (evolving as a result of the principal impossibility of stating the socially optimal amount of, in this way financed, goods) that can in principle only be solved very problematically - i.e. by bureaucratic decision making which is both arbitrarily (i.e. unfair) and usually very costly (i.e. ineffective) and that due to its totalitarian and rigid character (resulting from the lack of entrepreneurial motives) in fact prevents (or decelerates) discovering and applying of new options in this area (including its development).

Figure 1 – Public Goods



$D_{(s)}$ the overall (market) demand for public goods (social marginal benefit from public goods)

D private demand for public goods (marginal benefit of the producer from public goods)

$S_{p(f)}$ private supply of public goods (i.e. including transaction costs) if transaction costs are of a level that makes the goods virtually non-chargeable

$S'_{p(f)}$ private supply of public goods (i.e. including transaction costs) if transaction costs are high, but in fact realizable

$S_{v(s)}$ public supply of public goods (i.e. without transaction costs – only ruled by production costs)

$Q_{d(s)}$ socially optimal quantity of public goods at the cost price $P_{v(s)}$

$Q_{v(f)}$ quantity of public goods produced by corporations in case where the private supply equals to $S_{p(f)}$

$U_{f(f)}$ use of producers from their produced quantity of $Q_{v(f)}$ public goods

$U_{s(f)}$ social use of by corporations produced quantity of $Q_{v(f)}$ public goods

$Q_{d(f)}$ quantity of public goods supplied by corporations to the market in cases where the private supply equals to $S'_{p(f)}$ (i.e. at selling price $P_{p(f)}$, when production price is $P_{v(f)}$)

$Q_{(d)}$ demanded quantity of public goods at zero selling price (with marginal use $U_{(d)}$= 0)

[6] The most applied in practice is financing the TV and radio broadcasting (public goods) through the sale of commercials (private good). A commercial is virtually perfectly complementary to the broadcasted programme as its price is (usually) directly dependent on the (estimated) programme's popularity with the audience, respectively on the (estimated) demanded volume. It is true that there exist cases where a perfect (related) complement to the given public good exists (i.e. is known), but, nevertheless, (private) corporations do not use the revenue generated by selling or leasing it to (directly) finance its production. It is because they are in fact excluded from the process by public budgets.

$P_{(d)}$ price that needs to be paid for the production of public goods to assure that at the zero selling (distribution) price there will not be a deficit (i.e. it would be necessary to collect tax in the amount that equals to $P_{(d)} * Q_{(d)}$)

We can see from the graph, that if (due to the high transaction costs) the private supply of the goods is represented e.g. by the line $S_{p(f)}$, corporations then produce solely the quantity $Q_{v(f)}$ (which corresponds with their private marginal use $U_{f(f)}$). However, the common marginal use is $U_{s(f)}$ and the positive externality is created. If due to any reasons (e.g. due to the advancement of technology) the transaction costs on sale of the given goods were lowered, the private supply would then be represented by e.g. the line $S'_{p(f)}$. In such case, corporations would start charging for the consumption of the goods and selling them for a (relatively high) selling price $P_{p(f)}$, while the produced quantity of the goods would be $Q_{d(f)}$ and thus still lower than the socially optimal quantity $Q_{d(s)}$ (where the marginal use equals to the marginal costs).

Financing of public goods from taxes and its free distribution on one hand eliminates these high transaction costs, however, on the other creates a problem with identifying the socially optimal quantity of the goods, as at the zero price, the consumers request (demand) the quantity $Q_{(d)}$, where the marginal costs are $P_{(d)}$ still higher than the marginal use $U_{(d)}$. Optimal demand value ($Q_{d(s)}$, $P_{v(s)}$) cannot in this case be defined (we can only state the value of $Q_{(d)}$ for P = 0) and in the real world has to be estimated. This method of financing can thus only be approved in cases where there is a legitimate reason to believe that the divergence of the quantity estimated this way from the optimal quantity $Q_{d(s)}$ will be smaller than the estimated real divergence ($Q_{d(s)}$ - $Q_{v(f)}$), respectively ($Q_{d(s)}$ - $Q_{d(f)}$).

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