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**SYSTEMS COMPETITION AND
PUBLIC GOODS PROVISION**

JÖRN SIDERAS

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Systems Competition and Public Goods Provision

By *Jörn Sideras*, Universität Freiburg¹

Forthcoming in: Yearbook of New Political Economy 19, Tübingen: Mohr Siebeck, 2000.

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¹ I am grateful to Wolfgang Kerber, Chrysostomos Mantzavinos, Hansueli Stamm, Viktor Vanberg, Stefan Voigt and the participants of the „Jahrestagung für Neue Politische Ökonomie 1999“ for many helpful comments on earlier drafts of this article. All remaining shortcomings are, of course, mine. Also, I am indebted to the Volkswagen Foundation for support of this work.

1. Introduction

The purpose of this paper is to analyze the provision of public goods under systems competition, with an emphasis on the ability of mobile factors to evade taxation. From the 1950's through to the 1970's, it was debated whether public goods could be provided by private actors on the market.² In a general sense, a public good was understood to exist, if „a single unit of this good, as produced, provides a multiplicity of consumption units, all of which are somehow identical“.³ This understanding of public goods includes such characteristics as rivalry or non-rivalry in consumption, and excludability or non-excludability from consumption, so that a distinction between pure and impure public goods becomes possible. Usually, the Samuelson-criterion of non-rivalry in consumption is used to describe the main characteristic of a pure public good.⁴ The issue of non-rivalry indicates the relationship between the capacity and the use of a good. Below a certain capacity barrier, a good may be labeled a *pure public good* due to non-rivalry, that is an additional user does not alter the quality of the good for the rest of the users. By contrast, above that capacity barrier, an additional user will effect the quality of the public good for all other users, and we therefore speak of an *impure public good*. The criterion of non-excludability from the consumption of public goods may also be added here.⁵

The preliminary result of this debate is that, on the one hand, the efficient provision of pure public goods on markets is not possible. This can be ascertained, because free riding becomes possible due to non-excludability of potential users from pure public goods. Because of the resulting market failure, the state has to take over the provision of these goods.⁶ On the other hand, impure public goods can be provided by private actors on markets.⁷ In the late 1980's, globalization and the resulting systems competition, gave rise to a new round of the discussion on public goods which built on the findings of the early discourse.

The outcome of this new discussion is not clear, since in the debate on systems or jurisdictional competition, proponents and critics voice contrary opinions about the feasibility

² On the provision of public goods, see *Wicksell* [1898], *Lindahl* [1919], *Samuelson* [1954], *Tiebout* [1956], *Musgrave* [1959], *Buchanan* [1965], *Thompson* [1968], *Auster* [1977], *Demsetz* [1970], etc.

³ *Buchanan* [1968], 49. For goods which fall under the above definition, joint consumption by the users can be observed.

⁴ See *Samuelson* [1954].

⁵ Three dimensions of excludability can be distinguished. The exclusion of potential users can be technically possible, economically efficient and politically desired.

⁶ Generally, the state is responsible to step in where markets fail. Technological externalities, public goods and prisoner's dilemma situations are examples of market failure (see on this issue *Mueller* [1998], 176 and *Sinn* [1996]). Whether the politicization of market failure is likely to generate the ideally corrective measures recommended by welfare economists is not undisputed (see *Buchanan/Vanberg* [1988], 111). Although this article centers mainly around the issue of public goods provision, externality and prisoner's dilemma problems are also touched upon. Redistribution, another state duty demanded by authors like *H.-W. Sinn* or *F. Scharpf*, will not be considered in this paper.

⁷ On the provision of impure public goods on markets, see *Buchanan* [1965] and *Demsetz* [1970]. On the complementarity of public and private goods, see *Auster* [1977].

and desirability of providing public goods in general by governments under systems competition. Sceptics of systems competition argue that, if a competitive provision of pure public goods is deemed to fail on markets, it will also fail under competition among jurisdictions.⁸ Proponents, however, argue that an analogy of systems competition and market competition is justified. The reason for this is that, firstly, states have the ability and the authority to coerce and that, secondly, states are able to exclude non-contributors from their territorial domain, although not from the use of pure public goods within their territorial domain. Therefore, it is argued, mobile factors can also be exposed to taxation. A characteristic difference between the approaches of sceptics and proponents of jurisdictional competition is the underlying set of assumptions. While critics often work with the assumption of benevolent governments and a neoclassical concept of competition⁹, some proponents of systems competition presume Leviathan states and evolutionary competition among jurisdictions.¹⁰

The intention of this paper is to discuss the impact of systems competition on the provision of pure and impure public goods under these two sets of assumptions. More specifically, I intend to discuss the argument of the sceptics that, under systems competition, mobile factors are essentially not taxable for the purpose of financing pure public goods and that, therefore, in extreme cases, pure public goods can only be financed by taxing the immobile factors. According to this view, a potential danger is that an underprovision of pure public goods will result due to a diminishing tax base. In section 2, the provision of pure public goods is discussed under the two sets of assumptions for systems competition. The provision of impure public goods is examined in section 3, and section 4 concludes the paper.

2. The Provision of Pure Public Goods

Before entering the analysis of pure public goods it should be stressed, that the empirical relevance of non-rival, and therefore pure public goods, is highly controversial. Many authors who work with the analytical tool of non-rivalry in the consumption of public goods, at the same time clearly express the view that the analytical category of pure public goods is a polar case and that pure public goods might not even exist in the real world.¹¹ „Strictly speaking, no good or service fits the extreme or polar definition (of a pure public good; J.S.) in any genuinely descriptive sense. ... The standard examples such as national defense come

⁸ On the putative reintroduction of the market through the back door of systems competition, see *Sinn* [1997], 10.

⁹ Authors like *H.-W. Sinn* [1997] or *F. Scharpf* [1998] work with this framework of assumptions. The author is aware, that approaches exist, that mix the assumptions. On a neoclassical approach, working with the assumption of Leviathan governments, see *Brennan/Buchanan* [1980]. This paper mainly regards the two polar sets of assumptions described above.

¹⁰ This applies to authors such as *W. Kerber* and *V. Vanberg*. See *Kerber* [1998] and *Vanberg* [1999a].

¹¹ On the issue of the empirical relevance of pure public goods, see *Buchanan* [1968], 49, *Goldin* [1977] and *Bonus* [1979], 93.

reasonably close to descriptive purity, but even here careful consideration normally dictates some relaxation of the strict polar assumptions¹². On the other hand, some of the critics of systems competition explicitly deny the publicness of such goods for which non-rivalry cannot be asserted¹³. They, thereby, significantly reduce the state's competence to the provision of public goods. The fear of some sceptics, that the state will inappropriately be retarded by jurisdictional competition (e.g. by the underprovision of public goods¹⁴ in allocational terms, and the „death“ of the welfare state¹⁵ in redistributational terms) becomes insignificant, if the matter is looked at from this perspective. In this section, I will look at pure public goods as a mere analytical category.

Competition is as old as human history. It can be broadly defined as „a rivalry between individuals (or groups or nations), and it arises whenever two or more parties strive for something that all cannot obtain“.¹⁶ The term competition is closely linked to economic thought, since it can be understood as a socio-economic tool for dealing with scarcity. Various schools of economic thought have developed theories that focus on the problem of protecting welfare-enhancing competition in markets.¹⁷ Competing paradigms of competition can be distinguished. In neoclassical economics, competition is interpreted as a device for achieving economic efficiency in the market arena by leveling prices and costs. An evolutionary approach views competition as a knowledge-creating process.¹⁸ The distinction between these two concepts of competition is central to this analysis, which deals with the feasibility of competition among jurisdictions.¹⁹

¹² *Buchanan* [1968], 49. For a discussion of a number of standard examples for pure public goods and for an explicit critique of the theory of public goods, see *Goldin* [1977].

¹³ *Thomas Apolte* states: „...the jurisdictional competition for the provision of public goods [functions; J.S.] – pointedly expressed – only, when it, strictly speaking, does not involve public goods at all“. And he concludes: „Yet when the government provides these goods, it is always under the suspicion of providing economic activities, that would be better left to the private sector“. *Apolte* [1999], 93, 90. In the opinion of the author, as long as private actors are not hampered in offering public goods, and as long as cross subsidization by the state is prevented, there is no reason to keep the state away from competitively providing impure public goods.

¹⁴ See *Zodrow/Mieszkowski* [1986].

¹⁵ See *Scharpf* [1995].

¹⁶ *Stigler* [1987], 531.

¹⁷ Well known examples are the Harvard, the Chicago and the Austrian School. On a circumstantial survey, see *Mantzavinos* [1994].

¹⁸ For an evolutionary concept of competition, see *Kerber* [1997]. *F. A. Hayek* put much effort in the analysis of the *role of knowledge* in society. He attributed the creation and discovery of knowledge to competition (see *Hayek* [1991], [1994]). For an evolutionary approach to institutional competition among jurisdictions, see *Vanberg/Kerber* [1994].

¹⁹ See for arguments that justify the idea of jurisdictional or systems competition *Siebert/Koop* [1990], *Vanberg/Kerber*[1994]. See on a critical position *Sinn* [1990], *Scharpf* [1998]. In the course of this paper the terms *institutional competition*, *jurisdictional competition*, *locational competition* and *systems competition* will be used as synonyms.

Let us assume that a jurisdictional government intends to produce pure public goods without spillovers to other jurisdictions²⁰. Let us further assume for reasons of simplicity that the users of this good are citizens, who mostly represent the immobile factor, and jurisdiction-users, who mostly represent the mobile factors.²¹ Under such conditions, the private provision of pure public goods will break down due to free rider problems.²² A state entity with the authority to coerce has to undertake the production of the public goods. If the state provides the public goods, then it is clear that the (mostly) immobile citizens are unable to escape government taxation. In this section, the provision of pure public goods will be discussed under two different sets of assumptions. That is, first, under the assumption of benevolent governments and a neoclassical concept of competition, and second, under the assumption of Leviathan type jurisdiction governments and an evolutionary concept of competition.

2.1. Benevolent Governments, the Neoclassical Concept of Competition, Pure Public Goods and the Prisoner's Dilemma

The critics of systems competition often presume a rational and benevolent state is engaged only in filling in the gaps left by private market participants. The state as the relevant actor in systems competition is explicitly „seen as a rational institution correcting market failure and acting in the interest of its citizens“.²³ *H.-W. Sinn* justifies the assumption of a rational state for the analysis of systems competition by drawing an analogy to usual assumptions of rational firms and households for market competition. The business economist is correct when he „analyzes the internal coordination process within a business by means of a Principal-Agent-model, rather than starting from the hypothesis of rational-behaving firms; and (in regard to private households; J.S.) psychologists and social biologists are right to concern themselves with the imperfections of the human intellect. However, the economist as a systems analyst does better abstracting from such problems when endeavouring to understand the nature of the economic interactions of the market, and likewise he is well advised to disregard the Public-Choice School of thought when analyzing systems competition between jurisdictions“.²⁴ The justification for such unworldly assumptions is weak because Public

²⁰ The assumption that public goods do not spill over the boundaries of the respective jurisdictional domains is tailor-made for the underlying analysis. If this assumption was to be changed, that is, if we assumed spillovers among different jurisdictions, the problem would change in kind. We then would deal with an externality problem, for example, with the problem of international or global environmental externalities, which could only be handled by common supranational or global institutions, institutionalized by all governments involved.

²¹ By this simplification I do not intend to ignore the fact, that most citizens are both, owners of immobile and of mobile factors. On the assumption, that citizens mainly represent the immobile factor, whereas jurisdiction users mainly represent the mobile factors, see also *Vanberg* [1999a], 9.

²² *Bonus* [1979]. Articles which explicitly deal with the private production of public goods mostly assume rivalrous and excludable, and therefore, impure public goods. As an example, see *Demsetz* [1970].

²³ *Sinn* [1996], 1.

²⁴ See *Sinn* [1997], 11 f. (Translated into English by the author).

Choice Theory has shown that serious economic analysis is possible with more realistic assumptions about political actors. Nevertheless, issues of the production of public goods and of the creation of jurisdiction rents can be discussed under the assumption of rational and benevolent governments.

One of the most important assumptions of neoclassical economics is that the economic agents possess perfect knowledge. The assumption is that producers of goods and services know in advance what current consumer or user preferences are, „which products, which product qualities, or which design will satisfy consumers best, or which technologies, which inputs, and which organizational structures are best“²⁵ in producing these goods and services. All these variables are treated as given data in neoclassical economics. The role of competition in a neoclassical concept of economics is to ensure a competitive equilibrium²⁶ in which prices equal costs and allocational efficiency in the Pareto sense results.²⁷

The concept of neoclassical competition among jurisdictions implies, then, that for homogenous public goods produced in different jurisdictions, an equilibrium solution will occur. This means, that no difference in the quality, quantity, or price of the public goods offered in the various jurisdictions can be expected. The result is, that no jurisdiction rents are created, that is, that no difference exists for jurisdiction users between the return that they can receive from placing the factor in a given jurisdiction and the return that they can realize by investing the resource in another jurisdiction.

Mobile factors will not create any taxable mass for governments. Furthermore, mobile factors will have the opportunity and the incentive to free ride and to escape taxation without diminishing their utility. Governments still have the chance to tax the immobile factors, but they no longer have the option to skim off jurisdiction rents from the mobile factors. The tax base for the jurisdiction governments will melt down to the immobile factor. The provision of pure public goods will have to be managed from a smaller tax base. This may lead, in principle, to the underprovision of the pure public good, if discriminatory taxation among mobile and immobile factors is no option, or to discriminatory taxation of the immobile factor with the aim of collecting the revenue needed to provide the public good. The latter cannot, in all cases, secure sufficient revenue. A benevolent government does not have the option of excessive taxation of the immobile factor. Therefore, underprovision of the public good may well result.

²⁵ Vanberg/Kerber [1994], 198.

²⁶ „In (neoclassical; J.S.) economics the principal interest has been in determining the equilibria that are supposed to result from the competitive process. Furthermore, it is assumed that these equilibria can be derived from the relevant data of any given situation, and that therefore a detailed study of the workings of the competitive process itself is not a necessary part of such equilibrium analysis“. Vanberg/Kerber [1994], 193.

²⁷ See Vanber/Kerber [1994], 193 on the role of equilibria in the welfare economic approach to competition. On the competitive equilibrium, see Sinn [1997].

The critics of jurisdictional competition stress, under the assumptions of both a benevolent government and a neoclassical (welfare economic) concept of competition, the danger of a race to the bottom.²⁸ They argue that the main task of governments is to step in where markets fail. Therefore, in their view, re-introducing markets through the back door of systems competition will again result in market failure. Although *H.-W. Sinn* thinks that „it is of course true that under certain ideal conditions one can envision an efficient supply of public goods as a result of competition between social systems“, he still insists that „this idea cannot stand up to closer scrutiny“. ²⁹ Note that there is a difference between the argument that the provision of public goods will fail under competition among jurisdictions and the argument that the state itself is able to produce public goods efficiently, as long as no ruinous competition among governments exists.

The critics of systems competition do not claim that the state is able to produce pure public goods efficiently in the Pareto sense. After all, the problem of revealing preferences for public goods is still left unsolved.³⁰ Instead, their line of argument is defensive in that they insist on keeping competition away from the state's activities in order to avoid a complete breakdown of the provision of public goods. The argument that benevolent governments should be protected from having to provide public goods in a competitive environment, implies that competition among jurisdictions is in conflict with common interests of all jurisdictions involved. This line of argument suggests that such competition creates a prisoner's dilemma for the governments involved, that is, that the governments of various jurisdictions inflict mutual damage and create a situation undesirable for all.

In this sense, the problem of the underprovision of public goods, as identified from a neoclassical perspective, can also be interpreted as an international prisoner's dilemma. We can speak of an international prisoner's dilemma problem, because the relevant actors are the governments involved.³¹ A good example of an intra-national prisoner's dilemma problem in the realm of international economics is the case of protectionism, which explains protectionist policies as a result of rent-seeking³². In contrast to this intra-national dilemma, in which the relevant actors are the intra-national protection seeking interest groups, the case of the international prisoner's dilemma, which arises from the provision of public goods by governments in an international context and from the options of mobile factors to evade taxation, lies differently. In the neoclassical setting, the relevant actors, that is all governments, would be better off, for the purpose of the provision of pure public goods, if none of them would try to attract mobile factors by lowering the tax at the expense of the

²⁸ See *Scharpf* [1998] and *Sinn* [1994].

²⁹ *Sinn* [1990], 11.

³⁰ On preferences for pure public goods, see *Pommerehne* [1987].

³¹ On the issue of an inter- and intranational prisoner's dilemma situations in connection with public goods problems, see *Vanberg* [1999a], 12f.

³² See *Schuknecht* [1990].

other governments in an overarching downwards-process³³. This would secure the ability to tax the mobile factors.

Yet, the putative race to the bottom can be explained precisely by the (dominant) strategy of the governments, that is, by the incentive of every government to attract mobile factors by lowering the tax rate. It is assumed that the governments of various jurisdictions produce public goods within their domain, and that all public goods are pure (i.e., the conditions of non-rivalry and non-excludability hold). This means that the goods cannot be privately produced on markets because the private provision would break down due to free-riding and that therefore they have to be produced by the governments of the respective jurisdictions. It is further assumed that all governments have the power and the authority to coerce and to exclude non-contributors from their territory. Finally, all public goods are assumed not to spill over past the territorial boundaries of their jurisdictions.³⁴

As long as the governments involved are not engaged in jurisdictional or systems competition, they finance the production of the public goods by taxing all factors of their jurisdictions in a non-discriminatory fashion. This may be possible because those factors that are mobile under conditions of systems competition are, for some reason, not able to move outside of the jurisdiction. This means that the funding of the public goods is secured. However, this does not mean, as mentioned above, that the efficient provision of the public goods is secured, whether measured by internal or by external criteria, because the state can not solve properly the problem of preference revelation.

If, in turn, the jurisdictions enter into an effective systems competition (i.e. if it is possible for the owners of mobile factors to move the factors across into another jurisdiction), then discriminatory taxation between mobile and immobile factors is essential, otherwise the mobile factors may move. Therefore, either the provision of the public good will break down (if there is no taxable immobile factor available or non-discriminatory taxation is applied), or the mobile factors will go untaxed at the expense of the immobile factors who will be fully (or in the case of a malevolent government even excessively) taxed. In this case, it is also possible that an underprovision of the public goods will result due to a lack of an immobile tax base.

³³ One might be tempted to view this constellation as an intra-national prisoner's dilemma setting, because mobile and immobile factors have an incentive, yet not the same opportunities, to escape taxation. We could speak of an intra-national dilemma, if all citizens would be better off if nobody escaped taxation, because all would consume public goods in the desired quality or quantity. If this condition was valid, the effects of jurisdictional competition could be overcome intra-nationally. Then, no internationally arranged ban of jurisdictional competition, as claimed by the critics of jurisdictional competition as a solution to the problem, would be needed. Obviously, what is meant by the race to the bottom hypothesis is that parts of the citizenry gain more from escaping taxation than they lose from not consuming public goods in the desired quality. If this is the case, then this problem has to be resolved internationally.

³⁴ See *Breton* [1965].

While the neoclassical pattern of explanation blames systems competition as such for failures of competition among governments and manages without rules as problem solving devices, the prisoners' dilemma setting suggests that the competing governments have the option of merely submitting to a mutually restricting rule on the relevant action parameter, instead of claiming centralization or harmonization as the relevant alternatives for systems competition.³⁵ Governments can submit to a mutually binding rule³⁶. An admittedly disputable example³⁷ would be the rule not to discriminate between mobile and immobile factors in taxation. In this setting, compliance with the rule would mean that, if the immobile factor is taxed, the mobile factor will be taxed accordingly. Such a rule will only be followed by both parties, if both of them have the capacity to punish non-compliance of the other party. This condition is met because it is assumed that both governments are responsive to the tax conduct of the other. Extended to a multi-party setting, these thoughts suggest that jurisdictional governments subordinate themselves to a regional or a worldwide rule. The non-cooperative behavior of one of the jurisdictions would then result in punishment behavior by all other jurisdictions. In the case of a regional arrangement, the mobility of factors would have to be restricted to the boundaries of the regional territory in order to avoid an outflow of the mobile factors to jurisdictions, which do not belong to that regional unit and which have not confined themselves to adherence of the rule.

According to the prisoner's dilemma setting, and given the assumptions of rational and benevolent governments and a neoclassical approach to competition, a race to the bottom process with respect to the provision of pure public goods and the taxation of the mobile factors is not an inevitable fate. Under a neoclassical concept of competition, the solution for the problem of failure of competition among governments can only be centralization or harmonization and the abolition of competition. If competition is seen as a rule guided game and not criticized as such, then even under the threat of a race to the bottom, the options are not „unbridled tax competition“³⁸ with a resulting underprovision of public goods on the one hand, and the abolition of competition with a harmonization solution on the other. Rather, „without having explored the possibility of competition under *appropriate rules* more carefully, it would certainly be premature to recommend centralistic reforms as a remedy against deficiencies of competition among jurisdictions“.³⁹

³⁵ Sinn [1994], 97. On the notion of rules and a competition order for systems competition, see Kerber [1998].

³⁶ I will not analyze the process of constitutional change explicitly in this paper. On this issue, see Voigt [1999].

³⁷ It is not the intention of the author to suggest concrete measures for overcoming potential international prisoner's dilemma problems. Therefore, the suggested solution of a rule against discriminating tax policies may only serve as a means to illustrate the general argument.

³⁸ Sinn [1994], 97.

³⁹ Vanberg [1999a], 34 f.

2.2. Leviathan Type Jurisdiction Governments, Evolutionary Competition and Pure Public Goods

In the previous section, the discussion concerned the problems involved with the mobility of economic factors and the ability of governments to finance and provide pure public goods. It has been argued, that, under the assumption of benevolent governments and a neoclassical concept of competition, the mobility of factors enables them to effectively evade taxation. At the beginning of this section, the assumption of benevolent governments will be relaxed and the assumption of Leviathan governments will be adopted, before, in the second part of this section, switching from the neoclassical concept of competition to an evolutionary approach to competition.

The public choice literature, which also stands in the tradition of neoclassical economics, embodies a Leviathan approach to government. It presumes „that governmental decision makers maximize their own utilities subject to the constraints they face, including those that may or may not be imposed by means of the constitution“.⁴⁰ Political agents such as governments can seek to increase their personal utility or pursue personal interests at the expense of citizens' interests by appropriating the tax revenue as private income.⁴¹ Political agents can also pursue their personal interest by supporting the special interests of portions of the citizenry in their efforts to use the political process to achieve unilateral gains at the expense of the rest of the citizenry.⁴² This phenomenon has been labeled „rent seeking“⁴³ in the relevant literature. Contemporary democratic societies can be depicted along this phenomenon of privilege seeking. Rent seeking typically occurs in response to a concentration of competences in the hands of governments (agents) in combination with a lack of control by those who are governed (principals).⁴⁴

A Leviathan interpretation of governments regards effective competition among jurisdictional governments as a constraining device for governments in regard to the granting of privileges.⁴⁵ However, for jurisdictional competition to be effective, either perfect mobility of all factors, or excludability from the public good is necessary. In addition to the mobility condition, the following assumptions must also be valid in order to effectively constrain governments: there is a world of competing governments, in which each one supplies its

⁴⁰ Brennan/Buchanan [1980], 26 f.

⁴¹ In the extreme case, when there are no effective constraints on the uses to which revenues may be put revenue becomes equivalent to private income. See Brennan/Buchanan [1980], 26 f.

⁴² See on this issue Vanberg [1999a], 7.

⁴³ On rent seeking, see Tullock [1967], Krueger [1974], Buchanan [1980].

⁴⁴ See on this issue Sideras [1997], 84. G. J. Stigler puts it this way: „Congress may make a mistake, but only congress is in the official position to discern that it has made a mistake“, Stigler [1988], 18. (Translated into English by the author).

⁴⁵ See Brennan/Buchanan [1980] and Vanberg [1999a]. See also F. Scharpf on a critique on what he calls „naive total distrust“ against the state („naives Totalmißtrauen“), Scharpf [1998], 42.

citizens with public goods which do not spill over beyond the boundaries of the respective polity; each government is modeled as a revenue-seeking, surplus-maximizing Leviathan, with all factors being perfectly mobile; and there are persons who are motivated exclusively by the economic returns available to them (no personal preferences or locational rents). The case of excludable public goods will be examined later in this paper.⁴⁶

Brennan and Buchanan show that under the conditions mentioned above „there is no available surplus for potential exploitation by any potential Leviathan [...] . [...] each governmental unit [...] will find it necessary to offer public goods in the efficient quantities desired and to finance these goods efficiently. In this limiting case, freedom of trade and migration will render any overt fiscal constraints unnecessary“.⁴⁷ The idealized Tiebout process⁴⁸ will fully serve as a substitute for constitutional tax rules. However, it is clear too, that even a slight departure from this extremely restrictive model, for example the existence of an immobile factor⁴⁹, will generate a potential surplus for governmental exploitation. In such a case, either constitutional tax rules or limits will have to provide protection against such exploitation.⁵⁰ In the case sketched above, citizens (that is, the immobile factors) will have to be protected by constitutional tax rules from exploitation by the Leviathan. Mobile factors are better able to escape (excessive) taxation in the given jurisdiction by moving to some other jurisdiction. Simultaneously, they will no longer be able to use the public goods in the jurisdiction they left.⁵¹ The conjectured impact of systems competition on tax policies in jurisdictions differs according to the underlying concept of governments and of competition. Under the notion of benevolent governments, it is argued, the provision of pure public goods by competitive governments will fail. The conception of Leviathan governments regards competition as an effective device to limit the discretionary scope of governments and to force them to act according to the preferences of their citizens. Up to this point, only the neoclassical concept of competition has been considered. For the remainder of this section, I will analyze another concept, namely an evolutionary concept of competition. While the neoclassical concept of competition involves the idea of an equilibrium, the key notion of an evolutionary approach to competition is innovation, which enables entrepreneurs to break out of or to avoid such an equilibrium.

⁴⁶ See section 3. of this paper.

⁴⁷ *Brennan/Buchanan* [1980], 172.

⁴⁸ On the Tiebout process, see *Tiebout* [1956].

⁴⁹ In addition, either the accrual of locational rents or the existence of personal preferences can be seen as slight departures from the assumptions of the model.

⁵⁰ „There exist legal-constitutional restrictions on the government’s power to *take*, and, indeed, without some such restrictions there would presumably be no *raison d’être* for the institution of taxation itself“, *Brennan/Buchanan* [1980], 164. See there also chapter 8.

⁵¹ „To be sure, by migrating from one jurisdiction to another, mobile resources can avoid required contributions at the exit-jurisdiction, but they can do so only by simultaneously foregoing the services of that jurisdiction“. *Vanberg* [1999a], 21.

The notion of competition as an evolutionary process in which knowledge is created and spread, has its main roots in the concept of innovation and imitation as the stimulus of economic development⁵², and in the idea of competition as a discovery procedure.⁵³ The main focus of this notion is on the knowledge problem. In contrast to the neoclassical paradigm, perfect knowledge of the economic actors is not assumed. Instead, competition is seen as a trial and error process, or a conjecture and refutation process of the creation and dispersal of new knowledge⁵⁴, in which competitors, that is, firms in markets and governments in systems competition try out new hypotheses about the consumers' or citizens' preferences of new products, or technologies, etc.⁵⁵

There are two forces, which systematically complement each other in the process of evolution. The first force is innovation. Economic actors have an incentive for experimentation and innovation, which is decisive for the dynamics of competition and which stems from the possibility of economic actors to realize temporary monopolistic positions and supernormal profits. The process of trial and error changes the relative positions of competitors. Those actors, who are successful in their effort to offer superior solutions to customers or citizens, are rewarded. The second force is imitation. When it is successful and therefore profitable, innovation induces others covetous of the innovational rents to come up with other successful innovations or to imitate the actions of entrepreneurs, either by simple duplication or by producing substitutes.⁵⁶ „In the process, the imitators increase the demand for labor, capital, and other factors of production, thus pushing up their prices and the entire schedule of average costs. By increasing the supply of goods and services, they push down their prices. The increase in unit costs and the fall in supply prices eventually eliminate the rents of entrepreneurship and bring forth the circular flow equilibrium of neoclassical theory“.⁵⁷ A tendency towards a circular flow equilibrium will develop if there is not enough stimulus for new innovation in the market, that is, if innovative behavior dies down. However, it is also possible that the ongoing process of ever new innovations does not allow a circular flow equilibrium to be generated. Furthermore, if such an equilibrium exists, only innovative entrepreneurs are able to take the lead and break out of the circular flow equilibrium.

⁵² On the cyclical process of innovation and imitation as the driving force of economic development, see *Schumpeter* [1934], [1942].

⁵³ On competition as a discovery procedure, see *Hayek* [1948], [1968].

⁵⁴ On the process of scientific discovery, see *Popper* [1989]. On the parallels of an evolutionary concept of competition to the process of scientific discovery, see *Lachmann* [1977], *Hayek* [1979].

⁵⁵ On an evolutionary approach to competition on markets and among jurisdictions, see *Vanberg/Kerber* [1994]. On the relevance of the knowledge creating evolutionary approach for systems competition, they state: „The knowledge problem ... with regard to entrepreneurs in ordinary markets applies with full force to political entrepreneurs as well ...“. *Vanberg/Kerber* [1994], 204.

⁵⁶ „Hence this competitive process can be described as a perennial dynamic process of advancing and pursuing, of gaining and eliminating market power and profits“. *Vanberg/Kerber* [1994], 200.

⁵⁷ *Breton* [1998], 32.

If an *evolutionary, procedural understanding of competition among jurisdictions* is assumed (i.e. if competition is understood as a dynamic process which brings about innovations and knowledge creation), and if competition is consequently understood as a discovery procedure, then different jurisdictions will continuously endeavour to produce innovative public goods which will offer increased possibilities of return to the jurisdiction users. Other jurisdictions will try to imitate these innovations if they judge them to be superior solutions. The result is a continuous difference in quality or quantity of the public goods offered in the various jurisdictions, which contrasts to the world of neoclassical economics with the notion of homogenous goods, of equilibria and of perfect knowledge. What incentives do the mobile factors have to stay or leave a jurisdiction? The answer is the realization of jurisdiction rents. I call the jurisdiction rent the difference between the return that can be received from placing the factor in a given jurisdiction and the return that can be realized by investing the resource in the most attractive alternative jurisdiction.⁵⁸ At the same time, the highest alternative foregone return represents the opportunity costs of the investment in the given jurisdiction. The jurisdiction rent and the opportunity costs can be understood to include the price for the use of the public goods provided by the jurisdiction, that is the tax, which the factor has to pay. As long as the jurisdiction rent is positive, mobile factors will have an incentive to remain in the given jurisdiction. If the jurisdiction rent equals zero, a mobile factor will be indifferent as to whether or not to leave the jurisdiction. If the rent becomes negative, the user will withdraw the factor and place it elsewhere.

As long as an innovative jurisdiction manages to maintain its lead, it will be able to generate jurisdiction rents for the jurisdiction users. Furthermore, so long as the jurisdiction rent is positive, the jurisdiction government will be *able to collect taxes* on the use of the jurisdiction by mobile factors. Therefore, in principle, it is possible to tax mobile factors in a dynamic competitive setting. The taxes will not exceed the jurisdiction rent, however, for if they do, there is no longer a reason for the factor to stay in the given jurisdiction. Governments cannot exclude users from the use of *specific* pure public goods, but they can exclude jurisdiction users from the access to the territorial domain of the jurisdiction. This means that jurisdictional users (mobile factors) can only achieve the admission to the use of whole bundles of pure public goods, if they are willing to pay the tax fixed by the respective government. Due to differing preferences, jurisdiction users will realize their respective positive jurisdiction rents in different jurisdictions and be willing to pay differing taxes.

In principle, a setting of dynamic competition among jurisdictions in the provision of pure public goods (non-rivalry, non-excludability) will enable the innovative jurisdictions to tax mobile factors. If the dynamics of the competitive process do not allow for an ongoing process of creating temporary monopolies, then jurisdiction rents are bound to be eroded. In this case, jurisdiction rents may not allow for sufficient proportional tax revenue, and the danger of either underprovision of the pure public good or of an excessive (overproportionate)

⁵⁸ Technological leadership of a jurisdiction is not the only possible reason for the generation of jurisdiction rents. Also, personal relations (i.e. relations to relatives) or personal preferences (i.e. preferences for the mentality, climate or landscape of a region) may create rents. In the context of this analysis, I will abstract from these possibilities. For further thoughts on jurisdiction rents, see *Vanberg* [1999a], 11.

taxation of the immobile factor occurs. Leviathan governments may then have an incentive to tax the immobile factor and extract revenue as private income to the detriment of citizens, if no constitutional constraints are presumed.⁵⁹ At the same time they are motivated to satisfy the mobile factors with their price-benefit-bundles of taxes (raised from immobile factors) and innovative public goods due to systems competition. On the other hand, Leviathan governments may also have the opportunity to excessively tax the mobile factor, if the jurisdiction rent realized by the mobile factor exceeds, due to strong dynamics of the competition process, its proportional contribution to the funding of the public goods, and if the jurisdiction rent is fully extracted by the government in the form of a tax. This means that evolutionary competition among governments does not in all cases fully substitute for constitutional constraints on the tax policies of Leviathan governments. Therefore, constitutional constraints on tax policies on the national level may be needed, which prevent excessive taxation of the mobile factor (in the case of dynamic competition) as well as of the immobile factor (in the case of a lack of dynamic competition).

3. The Provision of Impure Public Goods (Rivalry, Excludability)

The controversy over systems competition does not center around rivalrous and excludable public goods, because, as I have mentioned above, some critics of systems competition do not view them as public goods at all. On the contrary, they argue that impure public goods should not be produced by governments at all, because they can be provided by private actors. Therefore, a discussion of the sceptics' view of the provision of rivalrous and excludable public goods will not take place here. In this section, only the view of the proponents of systems competition will be considered. Leviathan governments and evolutionary competition are assumed here.

Two scenarios can be outlined for impure public goods for which rivalry and excludability hold. In the first scenario, congestion occurs due to the excessive use of a pure public good. In this scenario, we presume that along with rivalry, excludability also occurs (e.g., due to technological progress) and therefore lowers surveillance costs. In a second scenario, rival and excludable public goods do not exist before they are produced. The owners of the necessary resources have ownership of the public goods, the authority, and the means to exclude non-contributors. These public goods can be produced by the state as well as by private entrepreneurs provided that the relevant rules and property rights exist.

⁵⁹ See Brennan/Buchanan [1980], 27 f.

Ad scenario 1.: Conflicts over the use of hitherto unscarce resources indicate the existence of technological external effects.⁶⁰ External effects can be defined as heteronomous arguments in the utility (or production) function of economic actors⁶¹, which are also of reciprocal character.⁶² Under the term *simple externality*, we shall subsume those effects, for which only one source and one recipient can be identified. If they occur, markets fail and an internalization of the effects through the institutionalization of property rights by the state becomes necessary. Property rights can be defined as the rights of individuals to use the resources. They are meant to ensure „an assignment of exclusive authority to some individual to choose any use of the goods deemed to be his private property“.⁶³ Property rights have to be exclusive, if they are to be exchangeable in the market arena. Exclusive property rights are well defined, if they are assigned to specific persons or groups of persons and if they specify the extent of authorization of the domain which they cover. In addition, owners must be able to exercise their property rights. These conditions aim at reducing the scope of unwanted heteronomous impairment to exclusive property. Due to transaction costs, not all externalities can be internalized. The exchange value of a given good or service, has to exceed the costs of surveillance for the specification of the relevant property rights, to be worthwhile.⁶⁴ The importance of property rights for the furtherance of prosperity has been expressed by *D. North* and *R. Thomas* from a historical perspective: „We have seen that despite the magnificence of their courts and the scale of their imperial ambitions, both France and Spain failed to keep pace with the Netherlands and England. Both absolute monarchies, caught up in a race for political dominance, failed to create a set of property rights that promoted economic efficiency. The result for their economies was stagnation“.⁶⁵

A *complex externality* can be understood to be an effect, in which one or more sources and more than one recipient exist. When rivalry becomes apparant in the use of a public good, a complex externality can be identified, which signals germinating scarcity of the good. What has been discussed above with respect to simple externalities also applies for complex external effects; they need to be internalized in order to ensure that the public goods are used according to their relative scarcity. The internalization can be carried out by assigning

⁶⁰ On the externality problem, see *Sideras* [1997], 44 ff. On the interrelation between complex externalities and excludable public goods, see *Sideras* [1997], 50 ff and 70 ff. On this issue, see also *Wegehenkel* [1991].

⁶¹ On the notion of externality, see *Scitovsky* [1954], *Buchanan/Stubblebine* [1962]. In the context of this paper, only technological external effects will be examined, not pecuniary externalities. Externalities shall be called technological, if they are not transmitted into the pricing system but directly enter the utility or the production function of relevant actors as heteronomous arguments. Pecuniary external effects can be defined as heteronomous changes in the price structure of a market economy due to changes in the relative scarcity and market exchanges. In contrast to technological effects, pecuniary externalities are not pareto-relevant and will not be looked at further. On the pareto-relevance of technological and pecuniary externalities, see *Buchanan/Stubblebine* [1962], 374 f. and *Sohmen* [1992], 221 f.

⁶² *R. Coase* draws attention to the reciprocal nature of the externality problem. See *Coase* [1960].

⁶³ *Alchian* [1965], 817.

⁶⁴ See *Demsetz* [1967].

⁶⁵ *North/Thomas* [1979], 120.

exclusive property rights to the public goods as defined above. According to the Coase-Theorem, it does not make any difference whether the relevant property rights are assigned to the source or the recipient of the externality, as long as no transaction costs, and a smoothly working pricing system, are assumed.⁶⁶ Furthermore, it makes no difference, in principle, whether the property rights are assigned to a single person or to a group of persons because the bargaining process will bring forth an efficient resource allocation in both cases.

In the case of public goods, these aspects are of minor importance. In the case of hitherto pure public goods (and in contrast to complex, especially negative externalities concerning, for example, environmental problems), the source(s) and recipients of the externality are engaged in the same sort of activity. A congestion problem can be diagnosed. Therefore, the assignment of the relevant rights does not cause many difficulties. One possibility for solving the externality problem for rivalrous public goods lies in the assignment of exclusive property rights (that is if exclusion is in principle possible) to the group of users of the public goods. This internalization will pay off if the benefits from the internalization exceed its costs.⁶⁷ The owners of the property rights will have to agree on the rules concerning the use of the public goods, a cost allocation base, and on procedures of excluding individuals from the use of the good who are not willing to contribute to the costs of its use.⁶⁸

The resulting constellation can be understood in terms of the exchange paradigm. According to this paradigm, the approach to economics as catallactics, the science of exchanges, draws our attention directly to the process of exchange, trade, or agreement to contract. „If we take the catallactics approach seriously, we then quite naturally bring into the analysis complex as well as simple exchange [...] . The emphasis shifts to all processes of voluntary agreement among persons. Economists need not restrict their inquiries to the behavior of persons within markets [...] . By a more or less natural extension of the catallactic approach, economists can look on politics, and on political process, in terms of the exchange paradigm“.⁶⁹ The institutional prerequisites for voluntary agreement on the constitutional level, and the assignment of property rights to all persons affected, are achieved through the internalization of the external effect. The relevant actors, who all pursue their individual interests on the sub-constitutional level by using the public good to the extent of rivalry, can now also pursue their individual interests on the constitutional level by engaging in group voting processes to develop rules to govern the use of the public good.⁷⁰ Furthermore, the conditions of

⁶⁶ See *Coase* [1960].

⁶⁷ See *Demsetz* [1967].

⁶⁸ On the need of voting procedures among the members of the relevant groups, see *Sideras* [1997], 72 f.

⁶⁹ *Buchanan* [1989], 14.

⁷⁰ „The core notion is that individuals may exercise their freedom to contract on both levels, that they may seek gains from voluntary cooperation not only at the sub-constitutional level, but at the constitutional level as well. People may seek to realize „gains from voluntary cooperation“ not only by engaging in mutually beneficial market transactions, but also jointly submitting to mutually beneficial constitutional constraints“. *Vanberg* [1999b], 230.

constitutional equivalence⁷¹ are also met. Constitutional equivalence can be ascertained, when the actors of any game hold the *right* to engage in rule guided choices of sub-constitutional moves, *as well as* the right to articulation of their constitutional interests through the complex exchange processes of voting.

Ad scenario 2.: If a desired public good has to be produced and the conditions of rivalry and excludability are met, then, under the concept of rule-guided evolutionary competition, the constitutional preconditions for performance competition⁷² among jurisdictions can be deliberately shaped. „Performance competition“ in an evolutionary sense means competition among jurisdictional or governmental entities and permits a better service to citizens through political responsiveness. The relevant action parameters of competing jurisdictions are the bundles of price (taxes) *and* performance (goods or services) they offer to the jurisdiction users and exclusion, since „there is no evidence that – regardless of possible differences in the quality of the services provided – [...] (the mobile resources; J. S.) will always favour the jurisdiction that demands the lowest taxes. In fact, it is far more likely that they will seek the most attractive cost-benefit package“.⁷³ This implies two things: First, the decisive prerequisite for performance competition is excludability. If exclusion from the use of a given public good is possible, then free riding can be averted. And if free riding can be prevented, a race to the bottom is improbable. *V. Vanberg* states, that a „race to the bottom is not likely, as long as the applied taxation rules prohibit free riding – i.e. the non-contributory use of jurisdiction services – and the taxes imposed on enterprises correspond to their use of the jurisdiction services“.⁷⁴

The argument that free-riding has to be prevented, where possible, by an appropriate rule, can be interpreted as an argument for the necessity of rules for effective performance competition among governments. Such a rule would permit performance competition, which would grant incentives for private entrepreneurs also to step in and compete with price-service packages. As long as such a rule, which prevents free-riding, does not exist, governments will be able to provide public goods and services, regardless of their rivalry and excludability, without demanding „taxes according to benefits“. In the case of a Leviathan government, the possibility of exempting special interests from the tax would facilitate rent seeking. The effect would be discretionary taxation. The possibility of free-riding would tempt users of the public

⁷¹ On the principle of constitutional equivalence, see *Sideras* [1998], 9.

⁷² The term „performance-“ or „achievement-“competition has been introduced by the Ordo-Liberals as competition among firms in terms of better service to customers, „as opposed to *Behinderungswettbewerb*, prevention-competition, i.e. competition by means that are rather directed at preventing competition from other producers, rather than improving one’s own performance“. *Vanberg* [1998], 176. Extended to the field of politics, performance-competition can mean competition among jurisdictional or governmental entities in terms of better service to citizens through political responsiveness. On a discussion on „ruinous competition“ versus „performance competition“ among jurisdictions, see *Vanberg* [1999a], 22. In this sense we may speak of conditioned, domesticated competition under institutional constraints.

⁷³ *Vanberg* [1999a], 21.

⁷⁴ *Vanberg* [1999a], 22.

good to free-ride on the publicly provided goods or services, as long as they obtain more benefits from free-riding than from using the price-service package offered at terms of benefit pricing. This again would negatively affect performance competition. If free-riding is prevented wherever possible and the production of public goods is open to any potential provider, then public and private providers of impure public goods enter a performance competition. Jurisdictional governments will provide pure public goods where they can be identified and impure public goods where they are competitive. The owners of resources have exclusive ownership of the impure public good and exclude non-contributors from the use of that good. Viewed „as *cooperatives*, that is as ‘territorial enterprises’ which are owned by their members“⁷⁵, democratic jurisdictions also competitively engage in the provision of such goods by offering cost-benefit packages.

4. Conclusion

This paper analyzed the provision of public goods under systems competition, with an emphasis on the potential of mobile factors to evade taxation. It is concluded that different sets of assumptions lead to different conjectures about the impact of the mobility of factors on the provision of public goods under systems competition. Under the assumptions of benevolent governments and a neoclassical concept of competition, it is usually denied that mobile factors are taxable under systems competition. However, the neoclassical problem setting can also be presented in terms of a prisoner’s dilemma game, and can be resolved, in contrast to the neoclassical approach, which suggests to prevent competition among jurisdictions, by the employment of rules for such jurisdictional competition. Under the assumption of Leviathan governments and a neoclassical concept of competition, governments can be made responsive to the preferences of citizens, if factors are essentially mobile. Under the assumption of the concept of evolutionary competition, well performing, innovative governments are able to tax, in principle, not only the immobile factors but also the mobile factors to the extent of their realized jurisdiction rents. However, under the additional assumption of Leviathan governments, even exploitative taxation of the mobile factor is possible. Finally, impure public goods can be produced and funded by private or public entrepreneurs.

Zusammenfassung

Der vorliegende Aufsatz untersucht Fragen der Bereitstellung reiner und unreiner öffentlicher Güter unter Systemwettbewerb. Das Argument von Skeptikern des Systemwettbewerbs, daß mobile Faktoren unter Bedingungen des Systemwettbewerbs praktisch nicht besteuert werden können, wird diskutiert. Der Autor kommt zu dem Schluß, daß unterschiedliche Grundannahmen zu verschiedenen Hypothesen über den Einfluß des Mobilitätsgrades von Faktoren auf die Bereitstellbarkeit öffentlicher Güter unter Systemwettbewerb führen. Wird

⁷⁵ Vanberg [1999a], 4.

die Annahme benevolenter Regierungen getroffen und mit einem neoklassischen Wettbewerbskonzept gearbeitet, so liegt die Vermutung nahe, daß mobile Faktoren unter Systemwettbewerb zur Finanzierung reiner öffentlicher Güter nicht herangezogen werden können. Unter der Grundannahme von Leviathan-Regierungen und eines evolutorischen Wettbewerbskonzepts wird die Hypothese formuliert, daß leistungsstarke, innovative Regierungen prinzipiell in der Lage sind, nicht nur immobile, sondern auch mobile Faktoren gemäß deren realisierter Jurisdiktionsrenten zu besteuern, und in einigen Fällen ist sogar exzessive Besteuerung denkbar. Unreine öffentliche Güter können schließlich von privaten und öffentlichen Anbietern wettbewerblich bereitgestellt werden. Demokratische Jurisdiktionen, verstanden als territoriale Unternehmen, die von ihren Mitgliedern besessen werden, stellen dann reine öffentliche Güter bereit, wenn diese als solche identifiziert werden, und sie bieten unreine öffentliche Güter an, soweit sie wettbewerbsfähig sind.

Abstract

This paper discusses the impact of systems competition on the provision of pure and impure public goods. The argument of the sceptics of systems competition that, under systems competition, mobile factors are essentially not taxable for the purpose of financing pure public goods, is discussed. It is concluded that different sets of assumptions lead to different conjectures about the impact of the mobility of factors on the provision of public goods under systems competition. Under the assumptions of benevolent governments and a neoclassical concept of competition, it is usually denied that mobile factors are, under conditions of systems competition, taxable for the purpose of the provision of public goods. Under the assumptions of Leviathan governments and evolutionary competition, innovative governments are able to tax not only the immobile factors but also the mobile factors to the extent of their realized jurisdiction rents and in some cases even exploitative taxation of the mobile factor is possible. Finally, impure public goods can be provided by private or public entrepreneurs, which enter an effective performance competition. Democratic jurisdictions, viewed as cooperatives, that is as territorial enterprises which are owned by their members, will then provide pure public goods where they can be identified and impure public goods where they are competitive.

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