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# Kieler Arbeitspapiere

# Kiel Working Papers

Kiel Working Paper No. 731

ON THE CONCEPT OF LOCATIONAL COMPETITION

by

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## **Abstract**

Locational competition means that the immobile factors of production in a country compete for internationally mobile capital and technology. Locational competition influences the restraint set of national players and redefines their opportunity costs. Thus, the bargaining position of the trade unions is affected. Also the manoeuvring space of government in terms of taxation and institutional arrangements is reduced. Governments are more or less forced into an economic policy (and institutional) benchmarking. A high degree of openness means that a country is exposed more to external changes. We therefore can expect that smaller countries will be the innovators in world wide institutional competition.

1. Competition in the world economy occurs on three different levels. Firms compete in the world product markets. Workers compete in the world labor market which is linked to the product markets since the demand for labor is derived from product demand. Countries compete in the world market for capital, for technical knowledge, for high-skilled mobile labor and, to some extent (for instance in historical cases) for residents.

Firms aim for higher profits by selling their products in markets of other countries; they enhance their competitiveness by producing a product in high demand, by developing a new product or by providing a good at lower costs. Workers strive to maximize their utility by searching for jobs with a higher income and with more secure employment. Governments attempt to maximize the utility of their residents, i.e. the income of the immobile factors of production. In a scenario without factor mobility, national governments can induce an increase in the supply of factors of production such as capital through savings, human capital through education, training and learning on the job and technical knowledge through invention and innovation (acquired comparative advantage). In a scenario with factor mobility, countries can augment the income of the immobile factors of production by attracting mobile capital and mobile technical knowledge and by inducing mobile factors not to leave the country. This improves the factor endowment of the country which in turn increases the productivity of the immobile factors. The policy instruments that can be used are the supply of public goods such as infrastructure and education, the system of taxation needed to finance the public goods, and the institutional arrangements under which private agents must operate.

The three layers of rivalry are interdependent: If a national government succeeds in attracting foreign capital, the productivity of labor is improved. A higher competitiveness of firms makes it more likely that a country is able to attract capital.

Note that the concept of locational competition or institutional competition or *Standortwettbewerb* is a concept somewhat unfamiliar to the anglo-Saxon literature on international economics or even not understood (compare Krugman 1994, as an exception Findlay 1995).

## 1. Channels of Locational Competition

2. Locational competition means that the immobile factors of production in a country compete for the mobile factors of production of the world. The issue is to what extent countries are able to keep mobile factors of production at home or whether they can attract mobile factors of production from abroad. In such a Tiebout context (1956), countries provide public goods, e.g. infrastructure capital, internal and external security, quality of the educational system and cultural amenities, and they thereby attract mobile factors of production such as high-quality labor, capital and technology. These public goods, however, have to be financed by taxes and fees; countries have to find the optimum mix between the provision of public goods and the opportunity costs of financing them. An ample supply of public goods may not be too desirable if it requires too high taxes, and very low taxes may not be attractive after all if the public infrastructure is extremely poor.

3. Locational competition operates through different channels, namely

- the mobility of factors of production, especially physical capital and new technical knowledge,
- the mobility of high-skilled labor and residents,
- the exchange of commodities,
- the mobility of portfolio capital, and
- a demonstration effect, i.e. by observing the performance and the success of other countries.

4. Locational competition has intensified. Commodity markets and the markets for capital and technology are globalized due to reduced transport and communication costs. At the same time, new organizational techniques allow the fragmentation of production so that more and more locations can participate in international trade. With China and Eastern Europe large regions of the world accounting for nearly half of the population will be effectively integrated into the international division of labor. World trade increases more strongly than world production, and foreign direct investment expands by a factor of four relative to trade (Nunnenkamp et al 1994).

5. Mobile capital can adjust its location if conditions for investment change. With respect to physical capital, this is possible ex-ante when capital is not yet embodied in machines; thus the mobility of capital refers to new capital, i.e. to investment (or to clay in a putty-clay model). Even when it takes time to turn physical capital into funds and even when an embodied capital stock therefore cannot be reallocated instantaneously, the movement of new capital is a powerful force of interdependence among countries. This also holds if it is taken into account that real capital movements only represent a mechanism netting out excess demand or supply of national capital markets in the sense of the Feldstein-Horioka (1980) hypothesis. Empirical studies suggest that this netting out role of real capital movements is increasing with the statistical relationship between national savings and investment ratios becoming more loose (Sinn 1992a).

6. In principle, capital movements represent the same mechanism as the free movement of goods, but the exchange of commodities needs more time and the impact of changes in commodity flows is less noticeable than the variations in capital flows. It is therefore not correct to relate locational competition to capital mobility only. Consider a country making production less attractive, for instance by regulation or taxation of business activities. In the case of capital mobility, capital will leave the country. In the case of the exchange of commodities (assuming a capital mobility of zero), comparative advantage will be reduced, the rate of return will fall and less capital will be accumulated.<sup>1</sup>

7. Types of locational competition can be distinguished by the policy instrument used such as tax competition, competition in public goods, and competition in the institutional arrangements of an economy or in the „Wirtschaftsordnung“ in the interpretation of the Freiburg school. Indeed, a large part of locational competition is institutional competition in the regulatory framework which defines the incentives for efficiency and for technological improvements in an economy.

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<sup>1</sup> Note that capital as a factor of production and the competitive position of sectors may be affected differently by the same policy instrument (see Findlay 1995).



## II. Competition in Public Goods and Taxes

8. Mobile capital has the option to leave a country when conditions become less favorable. In Figure 1, the capital stock  $OK$  of a country is determined by its marginal productivity schedule (curve  $PP$ ) and the opportunity costs of using capital in the country, i.e. the real rate of return in the world capital market (line  $RR$ ). Consider now a source-based tax per unit of capital  $IJ$  shifting the net productivity curve of capital downward. In the long run, capital  $IH$  will leave the country, and the new capital stock will be lower ( $OL$ ). Interpreting the area under the capital productivity curve as national output, the country will experience a reduction of national income. The implication is that governments are less free to tax capital (or other mobile factors of production).

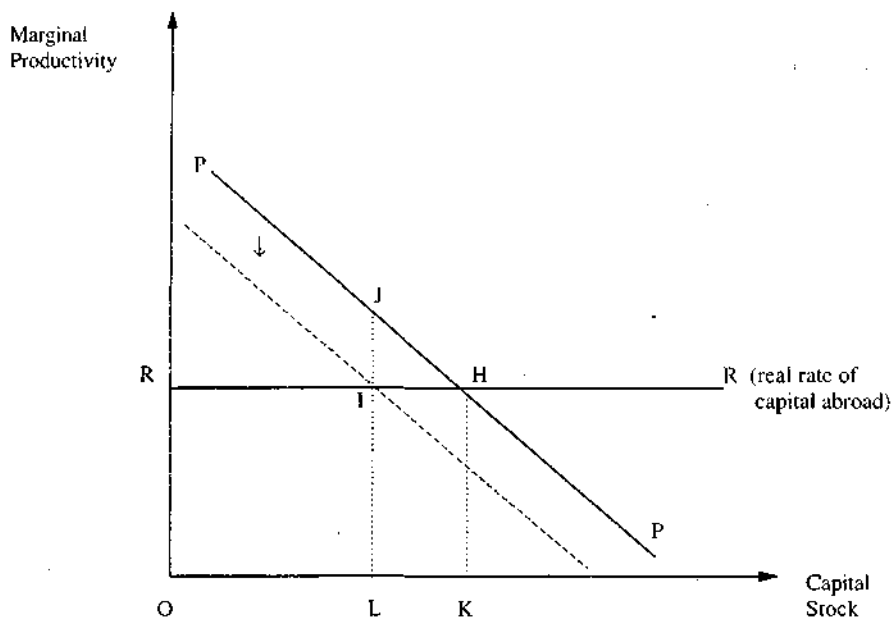
9. It is feared that tax competition among countries will eventually lead to a zero tax on capital. This is not true if the provision of public goods is explicitly taken into consideration. Tax competition has to be analyzed in a broader framework that includes the supply of public goods. Such a broader model of locational competition contains the following elements. The government provides public goods such as the transportation infrastructure (roads, ports, airports), the communications infrastructure, basic research and the educational system. In a broader context, other inputs provided by the government or even merit goods may be considered, for instance, museums and other forms of cultural infrastructure. These goods supplied by the government are specific to a country. They are an input variable in the production function; they may also be an input in the utility function of a national policymaker.<sup>2</sup>

Public goods are financed by taxes, for instance, by corporate income taxes and other taxes, such as payroll taxes. Taxes, among other things, determine the rates of return on the mobile and the immobile factors of production; they influence the attractiveness of a country for capital. In locational competition, both tax rates and the provision of public goods play a role.

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<sup>2</sup> See  $v(G)$  in Giovannini's [1989] equation [1], and  $G^H$  in Razin and Sadka's [1991] equation [1], where public goods enter directly in the utility function  $U = U(C) + v(G)$ . Alternatively, public goods may be an input in the production function of firms or of the macroeconomic production function, such that  $U = U(C)$ , with  $C = f(Y)$  and  $Y = h(G)$ .

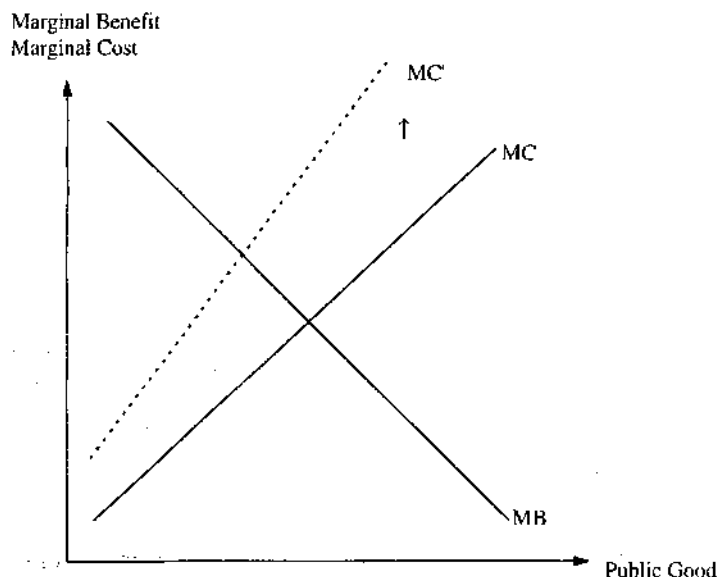
Figure 1 — The Impact of a Tax on Capital



10. High corporate taxes drive away private capital, but the provision of public goods may ease production and attract capital and highly qualified people. When public goods are an argument in the production function, tax competition does not lead to zero taxation. With public goods being provided, firms are willing to pay taxes. There is a balance between the burden and the benefit of taxation.

In Figure 2, the marginal benefit curve of a public good curve (MB) and the marginal cost curve (MC) are drawn. Marginal benefit, i.e. utility generated to a society, is assumed to decline with the quantity of the public good available; marginal costs, i.e. the opportunity costs in terms of production foregone, are increasing. The optimal quantity of the public good is determined where both curves intersect. Let MC represent the marginal cost curve of a closed economy. If the economy is open and capital is mobile, the opportunity costs of providing the public good are higher because capital has an outside option. The marginal cost curve shifts upward; less of the public good will be provided.

Figure 2 — Marginal Benefit of Public Goods and Marginal Costs of Taxation



What is optimal can be specified in different ways; from the point of view of society social benefits and social costs are considered. From the point of view of firms marginal benefits of an input provided by the government (or by someone else) are to be interpreted as marginal gross profit (marginal revenue); marginal costs of a unit of the input are influenced by the tax rate. This is the case of benefit taxation where the beneficiary of a public good and its payer are identical.

11. Quite a few immobile production factors supplied by governments are not public goods, but clubgoods, which can in principle be financed with user charges. In such a context (Tiebout 1956), countries competing with public goods and their financing do not create a policy problem or a coordination problem. Each country chooses its optimal supply of public goods and the corresponding method of financing. When taxation becomes excessive, capital goes elsewhere, and taxation is corrected. When the supply of public goods is too small, capital leaves the country as well. Since a country has opportunity costs in not providing public goods, there is a lower floor below which the supply of public goods cannot fall. Moreover, capital leaving a country will have to pay taxes elsewhere in

order to finance the public good there. It is therefore not correct to state that locational competition will lead to a zero supply of public goods.

12. Policy competition in the provision of public goods and in taxes has an important institutional aspect. This is the issue of fiscal equivalence [Olson, 1969], i.e., the problem of finding the correct institutional arrangement of financing a spatially limited public good. Apparently, this institutional setting cannot be taken as given. The communications infrastructure, for instance, can be privatized; then we no longer have an issue of policy competition. Immobile private goods, like infrastructure, imply nationally differentiated prices. This may also hold for other public goods that can be interpreted as clubgoods, such as roads and airports. They can all be financed by user charges. Thus, one can envisage an institutional arrangement in which user charges finance roads, ports, airports and other „public“ goods. For instance, roads may be financed by imposing a mileage tax on cars for using the roads and an emissions tax on cars for polluting the environment. For such a scenario, the issue of tax competition and competition in the provision of public goods vanishes; it has become a matter of differentiated prices for immobile private goods. And different prices for immobile factors of endowment are a regular part of trade theory.

13. Matters become more complicated if the user and the payer are separate, for instance, if the transportation infrastructure is financed by general taxes. Then general taxes or taxes on immobile factors of production may be used to attract capital; another case is when the public good is an argument of the utility function instead of the production function. But again there is a trade-off, albeit much more complex, if governments ultimately attempt to maximize the income of the immobile factors (or of residents).

14. Matters are also more complex if a country can behave strategically, for instance if being first matters, i.e. if hysteresis plays a role. Then taxation can be used strategically in order to attract capital. Then a country can enjoy the strategic advantage of sunk costs. It should be noted, however, that in the long run, all fixed costs are variable and all sunk costs vanish.

15. In the case of merit goods such as distributional targets and social security systems there is no positive production effect (except when social stability is treated as a factor of

production). In such a setting providing these goods may induce capital to leave the country; it thus becomes more difficult to provide these goods (Sinn 1990).

### III. The Impact of Locational Competition for Labor

16. Capital may not only leave a country, if taxes are too high and public goods are not sufficiently provided. Capital may also react to wage costs. Consider a static setting with a given capital productivity curve PP as in Figure 1. There is no capital tax. Assume that trade unions succeed in raising wages thus reducing the net productivity (rentability) of capital. The net productivity curve of capital will shift downward as in the case of capital taxation, and a lower capital (OL) stock will be accumulated in the domestic economy. The capital outflow will reduce in labor income. If we consider a growing economy with exogenously given productivity growth, there is less room for wage increases. Note that in a general equilibrium context the increase of wages relative to the price of capital will imply a higher capital intensity which will be a counter-effect to a lower labor income due to the lower capital stock. As a net effect, however, the country will lose capital.

17: The bargaining position of the trade unions aiming for a high income of their members and for secure employment will be affected by a higher capital mobility. Assume they succeed in pushing for a wage increase higher than productivity growth. In an open economy with capital mobility, capital will leave the country, and either wage income falls or, with the previous income remaining constant, more people will be unemployed. The opportunity costs for trade unions rise, and they must change their strategy except when social policies of the government accommodate the unemployed. Thus, the globalization of markets and the increased capital mobility have altered the relative bargaining position of trade unions. The same effect will prevail if commodities are exchanged; however, this channel of locational competition will require more time.

18. Assume trade unions only are interested in raising (or defending) the wages of those who are organized as trade union members. Then the bargaining equilibrium between employers associations and trade unions is affected by the increased mobility of capital. Firms have an exit option, and this may lead employers association to not resisting wage

increases too strongly. Then, delegating the wage formation process to the social partners according to the concept of *Tarifautonomie* will no longer yield positive results for the economy as a whole with respect to employment. This implies that locational competition requires to redefine the checks and balances of wage bargaining.

#### **IV. Redefining the Opportunity Costs of other National Players**

19. Locational competition affects the restraint set of other national players as well and redefines their opportunity costs. Thus, increased capital mobility has an impact on the restraint set of governments. In the case of taxation, a tax on capital will drive out capital (under *ceteris paribus* conditions). The government has to consider the impact of capital outflows since this means that the benefits from capital taxation in terms of tax revenues for the government have to be weighed against higher opportunity costs of less capital accumulation. This also holds if taxes financing social policies have a negative impact on economic activity and on employment. Thus, the manoeuvring space of government in terms of taxation is being reduced.

20. This controlling function of capital markets is especially strong in the case of portfolio capital which can be reallocated at the finger's tip. Consider stabilization policy (monetary policy, fiscal policy) and assume that a country expands its money supply in excess of the growth of the supply side. Then, purchasing power parity indicates that the national currency will be devaluated; market participants will anticipate the devaluation. This purchasing parity affects exchange rate expectations. A similar effect also holds if public debt is increased and if exchange rate expectations are affected. This mechanism (an interplay of purchasing power parity forming exchange rate expectations and interest rate parity determining portfolio adjustments) represents a check on destabilizing behavior of governments. It obtains importance if residents are made more alert on the value of their currency by institutional arrangements, for instance by the European Exchange Rate Mechanism.

21. Also in the area of institutional arrangements, governments are no longer completely free in what they do. If other countries have more efficient economic systems they will

gain comparative advantage for their products or attractiveness for their location. Similarly as firms use benchmarking relative to other locations, governments are more or less forced into an economic policy (and institutional) benchmarking in which opportunity costs of economic policy targets elsewhere can be obtained as a frame of reference.

22. A case in point is the diverging experience of different regions of the world with respect to policy approaches. Regions of the world which have faced locational competition head-on have had economic success in the past; regions which shied away from locational competition have fallen back.

Eastern Europe had a division of labor from above by managed trade where the exploitation of economies of scale was the leading doctrine. But in essence, Eastern Europe had not been exposed to competition from the world economy. Latin America was misled for nearly four decades up to the late eighties by the economic doctrines of Prebisch (1959) and Singer (1950) and the policy of import substitution. This approach implied that the tradeable sector of the economy was not exposed to world market prices. Eventually, Latin America lost its efficiency, until it changed its policy in the nineties.

It is worth noting that these efficiency losses are long-run phenomena and that it takes some time for the loss of efficiency and the slow down of dynamics to eventually show up. This holds for Eastern Europe where the fifties basically indicate a normal pattern of the catching-up process relative to the United States, but where eventually the grinding force of paralysation and inefficiency takes over. A similar story holds for Latin America where with the lapse of time the restrictions imposed by the policy of import substitution showed their fatal result.

The Pacific Rim countries have followed the opposite route. They were outward oriented and they did not distort relative prices between export goods and import goods. Thus, their infant industry had to compete from the start with the world economy and find the markets for their products. This proved to be an incentive to make the national economy more efficient. A country or a region of the world not participating in this beauty contest will eventually fall behind.

23. Individual countries may be affected differently by locational competition, and they may react differently. A high degree of openness means that a country is exposed more to external changes. We therefore can expect that smaller countries will react more strongly. Note that the innovators in world wide institutional competition are small countries like New Zealand and Chile. Countries where markets play a larger role relative to the government are more prepared to adjust to external changes. The United States is a case in point. Also, the problem solving capacity of countries differs depending on how quickly a consensus can be reached and on whether institutional arrangements favor the status quo. Korea has shown to be able to quickly respond to a crisis; European countries are slow to adjust.

24. The paradigm of institutional competition can easily be applied to environmental policy. In the absence of spillover effects, there is no need for the harmonization of environmental policies (Long, Siebert, 1989). It seems that the paradigm of locational competition is more useful than the strategic trade literature, in which it is maintained that countries compete with export subsidies.

25. It should be noted that mobility of residents and mobility of capital introduces additional options for individuals enlarging the decisions space of individuals relative to the government. Locational competition can thus be seen as a device of taming the Hobbesian Leviathan (Sinn 1992).

## **V. An Institutional Order**

26. An unsolved question is to what extent an institutional order is necessary for locational competition and how it can be created. The target of such an order is to establish rules for competition among governments and to integrate these rules in the wider context of rules for trade and investment. Open markets for goods and the free flow of capital and other resources will be important elements of such a world order.

27. Within Europe, the power of institutional competition has been proven by the Cassis-de-Dijon-verdict of the European Court of 1979 ruling that a product legally brought to the



market in one country of the European Union also has to be accepted in other countries. This verdict introduced the country-of-origin principle in institutional arrangements. This principle was a can-opener for the reform of institutional regulations within the European Union; it was extended to the service industry.

28. Note that the rules of the World Trade Organization attempt to give room to the country of origin principle in trade since the destination principle would erect trade barriers; the destination principle would imply that countries receiving import goods would define products norms which would represent a barrier to trade. In the area of services, it is unlikely that the country-of-origin principle can be extended to the world economy. Here, the national treatment principle is the norm securing that foreign services will meet the same rules as national products and national services. Another major issue is to what extent the instrument set of national governments, for instance with respect to taxation and the provision of public goods, should be limited by an international code in analogy to the subsidy code.

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