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Federalism, Decentralization, and Economic Growth

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by

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Summary:

The distribution of competencies between the different levels of a federal system may have remarkable effects on economic growth, because mainly the regions of a country contribute to national economic development. Thus, a government's economic policy is reasonably shaped along regional lines. The theoretical discussion in economics focuses however on the efficiency aspects of a decentralized provision and financing of public services; rarely the argument is raised that decentralization or federalism increases growth through a higher ability of the political system to innovate and to carry out reforms. After a discussion of the theoretical arguments on federalism and growth, we address the empirical question in this paper how important the assignment of decision making competencies and the design of fiscal federalism are for economic development. Finally, on the basis of existing theoretical and empirical studies on economic growth and federalism, open questions and possible ways of answering them are presented.

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1. The issue at stake or: From the dominance of efficiency aspects in fiscal federalism research to an orientation towards growth

Modern research on fiscal federalism has focused mainly on the allocative and distributive consequences of a decentralized government structure (Richter 1994, Wellisch 2000). At the heart of the efficiency perspective is the question to what extent a decentralized provision and financing of government services leads to externalities which influence the level and the quality of public services in other jurisdictions (Feld 2000, Feld and Kirchgässner 2001, Feld and Schneider 2002). Depending on their properties, these external effects encompass regional and fiscal externalities which, in turn, can be separated – according to their interdependency in the structure of jurisdictions – into horizontal and vertical externalities. Although their existence is undoubtedly plausible, it is intensively discussed whether such external effects in fact lead to economically important efficiency losses (Wilson 1999, Wilson and Wildasin 2004). A final judgement on the efficiency of competitive versus cooperative federalism does thus not exist. Exclusively looking at fiscal competition in a federation, individual externalities might compensate for each other as the example of a decentralized corporate income tax shows (Sørensen 2004, Wilson and Wildasin 2004).

The assessment of the efficiency of fiscal federalism becomes even more complicated if political economy arguments are considered (Sato 2003). At most, it is justified to judge the effects of decentralized financing and provision of public services negatively if government does what it ought to from an economic perspective, namely to correct market failure. If, however, government failure occurs in the sense that the public sector, because of insufficient political competition between parties or between interest groups, has expanded too much, then fiscal competition has a beneficial effect because it constrains the activities of political actors (Besley and Coate 2003, Döring 2001, pp. 62). If the political economy problems are neglected, the central government could provide public services in a differentiated fashion according to different local and regional preferences and effectively internalize their externalities. It could hence limit decentralized activity to the administration of these services. Decentralized service provision would then only be justified by the „frustration costs“ which result from being outvoted (Zimmermann 1999, pp. 31).

These controversial theoretical arguments do not lead to unambiguous results as to the specific assignment of fiscal competencies in a federal system. Therefore, it is necessary to test the competing hypotheses empirically. This is rendered difficult by the fact that economic efficiency in providing public services is hardly testable in empirical terms. Public services are considered to be provided efficiently, if the marginal cost of providing them equals the sum of consumers' marginal willingness to pay. However, it is not easy to figure out individual valuations of public services because individuals have incentives to under-report there true willingness to pay if they have reason to fear the actual payment for this public service. The existing literature contains only few authors who have made such an effort at all (Feld 2000, pp. 146).

In an alternative approach, the relative advantage of different federal arrangements in their effect on economic development can be assessed by the extent they determine conditions for economic growth. The assignment of decision-making competencies to different levels of government can influence national economic growth by shaping regional growth-promoting policies. The traditional public finance instruments, taxes and government expenditures, but also decentralized regulations can in many respects enhance, but also dampen, regional economic development. For instance, the provision of local and regional public infrastructure usually constitutes an important prerequisite for development in a region. Tax advantages and subsidies ease, and rather high tax loads hamper, the location of enterprises in national and international competition – ceteris paribus. However, in his survey on fiscal federalism, Oates (1999) mentions only few studies on the relation between growth and federalism, and in a letter of July 2002 he again notes, „that there is not much in the way of specific literature on this issue“. At the same time he points out (Oates 2002) that the question, whether a federal system has a higher growth potential than a unitary system, constitutes an important subject for further study.

In this context, particularly the empirical question has to be raised, which importance the assignment of decision-making competencies in a federal system actually has for economic growth. An answer can follow along two different lines of argument:

(1) On the one hand, one may ask whether it is favorable for economic development and structural change in a country, if that country is organized as a federation or a unitary state. By doing so, a top-down perspective is adopted, and the question becomes which role the lower level governments perform for the economic development of a country.

(2) On the other hand, it appears important to know which type of internal arrangement of a country favors regional development. For instance, a far-reaching horizontal equalization may have positive or negative effects on regional economic growth while the autonomy of sub-federal jurisdictions in tax and expenditure policies may be important for regional development. Thus, a bottom-up perspective is assumed by focusing on lower level jurisdictions, regions and agglomerations. At stake is thus the role of the federal constitution, especially its fiscal parts, for regional economic development.

In this paper both directions are pursued. First, efforts are made to assess the advantage of a federal system compared to a unitary system. Second, the various possibilities to shape federal arrangements are considered. To obtain a concise picture on the state of economic research in this field, the theoretical basis concerning the determinants of national and regional development is looked at and open questions are emphasized (Section 2). First efforts to explain the role of regional decision-making competencies and of federal arrangements do exist already, but they need to be supplemented in various ways. Empirical results on the influence of federalism on economic growth have been reported recently in a number of studies, which are brought together in Section 3. In Section 4 the shortcomings of these theoretical and empirical analyses are discussed, and an outlook is ventured on possible strategies for advances in this field of research. A few final comments follow in Section 5.

2. Economic development, innovation, and federalism: Theoretical approaches

Apparent differences exist in the growth performance between regions of a country, be it for instance between the German Lander or the Swiss Cantons. This leads to the question, what determines these differences and which effects they have on national economic development of a country.

2.1. Federalism and recent developments in regional economics

Since the early 1990s economists have made renewed efforts to analyze the determinants of regional growth in more detail. The theoretical bases for this interrelationship is to be seen in analyses of the effects which emanate from the process of economic growth on regional structures. Important contributions in this field were made by New Growth Theory, New Trade Theory and – building on these two approaches – New Economic Geography. Additional contributions were made by considerations of knowledge spillovers and on 'creative milieus', with the latter being of a more qualitative nature. Before the background of these different theoretical approaches some preliminary conclusions can be drawn concerning the subject of this paper:

- From the perspective of *New Growth Theory,* it is knowledge (or innovation) which is decisive for explaining national as well as regional growth in high-income countries. Models of endogenous growth are based on the assumption that a decreasing marginal productivity of capital which is perceived as an impediment to continuous growth of per capita income in neoclassical growth theory has become irrelevant. Investment in physical and human capital induces positive externalities which allow for sustained growth (Aghion and Howitt 1998, Kurz and Salvadori 1998). The regional implications finally depend on the model in question. But the approaches of New Growth Theory have in common that – as opposed to neoclassical growth theory – a systematic convergence of per capita income need not happen. Instead, differences in income can remain during regional development or they may even increase (Martin and Rogers 1995, Martin 1998).
- A number of *New Trade Theory* models try to combine explanations of endogenous growth with trade theory considerations in order to develop justifications for strategic trade policy (Krugman 1987, Grossman and Helpman 1991, Young 1991). In these models, the factor of knowledge assumes a central position again, and by the assumption of increasing economies of scale, of imperfect markets, or of heterogeneous products it enters the respective lines of argument. The authors conclude that,

given international free trade, the long-term growth perspective worsens for countries which are relatively poor in human capital and knowledge, because countries, which are rich in human capital, specialize in the production of technology-intensive goods, whereas countries, which are poor in this respect, specialize in the production of low-tech products. In principle this argument can also be transferred to regions by assuming that such patterns of specialization are not only at work in the exchange of goods between countries, but also at a disaggregate regional level. Thus, not only countries, but also regions can reach a long-term growth path as locations of enterprises which have a knowledge-intensive production, the path being marked by permanent economic advantages vis-à-vis other regions.

- A further explanation of growth differences between regions of a country are provided by *New Economic Geography* (Krugman 1991, 1999). At the center of the analysis is the endogeneity of economic concentration. This is obtained by rendering the size of markets the variable to be explained by the introduction of (partial) mobility of production factors and of firms. In addition, the inclusion of transport cost and economies of scale are characteristic elements of the model, which are of central importance for the analysis of centrifugal and centripetal forces and hence of emerging core-periphery-structures (Fujita et al. 2000, Ottaviano and Thisse 2003). In the simplest type of such models, market-size effects (backward and forward linkages) are considered the strongest centripetal power while regional immobility of resources is the strongest centrifugal power. Under such conditions, economic agglomeration occurs when the centripetal influences exceed the centrifugal influences, which again depends on the size of transport cost. Interestingly, the models provide a hint why national growth is not distributed equally across the existing regions, but instead is mainly generated in agglomerations (Zimmermann 2002).
- The dominant contribution of agglomerations to a country's national growth is in accord with the fact that the distribution of newly generated knowledge frequently occurs in regionally limited form (Anselin, Varga and Acs 1997, Varga 1998). In this context, particularly the region-specific conditions, including social milieus and networks, which induce creativity and thus regional growth, are decisive determinants (Camagni 1995, Bertuliga et al. 1997, Huggins 1997). Innovations are hence the result of collective interaction processes with the regional proximity of the actors being

> the prerequisite for an intensive and continuous transfer of knowledge. Additionally assuming that knowledge spillovers are of central importance for national as well as regional growth, they provide for an additional reason for the formation of agglomerations (Audretsch and Feldman 1996, Caniëls 2000, Keilbach 2000). In principle two types of knowledge spillovers can be distinguished depending on whether they induce the regional concentration of enterprises of the same sector (MAR–spillovers or regional economies of scale) or of enterprises of different sectors (Jacob-spillovers or regional economies of scope). Both types can also occur together, thus forming even stronger centripetal forces (Döring 2003).

It follows from these theoretical approaches that the different institutional arrangements of federalism influence the economic development of a country and its regions. According to the most recent results by Rodrik, Subramanian and Trebbi (2002) concerning the determinants of international economic development, legal and political institutions determine the growth performance of a country. The federal or unitary organization of a state as well as the assignment of decision-making competencies within a federation are an important part of these institutions. Decentralized government solutions facilitate to stronger focus on the economic necessities in agglomerations. Agglomeration processes can then be supported in a useful way, for instance by specific investment in public infrastructure or human capital.

2.2 Federalism and decentralization as a growth-generating process

Because of the regionally differentiating effects of growth processes, the question must be more precisely, how federalism actually influences economic development: Which impact on regional development processes should be ascribed to the fiscal federalism and in particular to fiscal competition? Usually economists evaluate competition positively as the main force creating a high variability and quality of product supply and the possibility that individuals can pursue their preferences. Tiebout's metaphor (1956) of 'voting by feet' thus implies that competition has positive effects that mainly develop in a dynamic economy. A decentralized experimentation of new governmental solutions for economic problems occurs such that new solutions are adapted by competing jurisdictions. Competition between jurisdictions thus becomes a discovery process which enhances the prospects of political innovation. Federalism and decentralization lead to a higher innovative capacity of the political system. Already in 1932, Louis Brandeis, judge at the U.S. Supreme Court, summarized this argument in the following way: „It is one of the happy incidents of the federal system that a single courageous State may, if its citizens choose, serve as a laboratory; and try novel social and economic experiments without risk to the rest of the country“ (quoted from Oates 1999, p. 1132). In this context Oates (1999) speaks of ‘laboratory federalism’ and points out that the reform of welfare in the USA in 1996 followed exactly these considerations (Inman and Rubinfeld 1997). This competition may induce regions to create favorable conditions for the use of agglomeration advantages and to counter agglomeration disadvantages (Zimmermann 1990).

In a slightly different fashion, Weingast (1995) points to the advantages of a ‘market-preserving federalism’. Starting from a „fundamental political dilemma", according to which "a government strong enough to protect property rights and enforce contracts is also strong enough to confiscate the wealth of its citizens“ (p. 1), he considers competitive federalism as a chance to reduce the scope of the government and thus to maintain market efficiency. Because of the better migration chances of mobile investors, the governments of sub-central jurisdictions conduct investor-friendly policies and adopt solutions promoting market outcomes. Weingast continues an earlier analysis by Hayek (1939), according to which „planning in a federation cannot assume the forms which today are pre-eminently known under this term; ... In a federation economic policy will have to take the form of providing a rational permanent framework within which individual initiative will have the largest possible scope and will be made to work as beneficiently as possible“ (p. 268). This competition appears as particularly favorable, whenever fiscal regimes do not provide a reliable protection against excessive taxation (Schnellenbach 2003). Similar conclusions can be drawn from the political economy analysis by Brennan and Buchanan (1980).

Weingast does however not provide more precise considerations as to the growth effects of federalism. He only considers to the advantageous regulatory framework in England in the 18th century and in the US in the 19th century as such systems of ‘market-preserving federalism’. Rodden and Rose-Ackerman (1997) doubt that matters are so simple. They argue that decentralized government may follow the demand of local interest groups and possibly protect these by protectionist measures from external competition instead of serving the general interests of mobile investors. Whether federalism produces market-preserving or protectionist policies thus depends on further elements of the institutional framework.

The higher innovative capacity of federations as compared to unitary states as possible explanations of differences in economic development is also contested in general. In a decentralized system, citizens use the performance of the governments of other jurisdictions as yardstick when considering their re-election ('yardstick competition' according to Salmon 1987, Besley and Case 1995, Feld, Josselin and Rocaboy 2003). A government is re-elected if it provides a bundle of services and tax prices that are at least not worse as compared to other jurisdictions. Governments thus have incentives to initially wait to see which policies of other jurisdictions turn out to be relatively successful, and then imitate these. Uncertain about their re-election prospects, governments have an incentive to free ride with respect to the policy innovations of other jurisdictions such that the absolute amount of policy innovations in a federation is reduced (Rose-Ackerman 1980). Strumpf (2002) emphasizes that this free-rider position strongly depends on homogeneity and on the number of jurisdictions. Heterogeneous jurisdictions less probably free ride, because it pays off to them to proceed with custom-made policy innovations. Kotsogiannis and Schwager (2001) argue that in a federation policy innovations offer the possibility to selfish politicians to obtain personal advantages while marketing them as the result of the uncertainty of policy innovations. Schnellenbach (2003a) takes the incentives of voters in a decentralized process of political innovations into account. As voters are normally rationally ignorant – due to the low incentives to be politically informed – policy innovations are mainly possible in times of crises. The incentives of citizens to be informed about policy innovations are improved by high mobility and by elements of direct democracy in political decision-making processes. Thus, political rents of governments can be reduced by competition and politicians have incentives to innovate.

Similarly, political scientists and sociologists, who have been dealing with the description and explanation of political and societal innovations in federal systems for some time (Walker 1969, Gray 1973, Berry and Berry 1990, Nice 1994), do not agree upon whether federalism is favorable to policy innovations. Mayntz (1995), for instance, emphasizes the creation of knowledge which can be attained through parallel experimentation. But this result is questioned by Scharpf, Reissert and Schnabel (1976) and Scharpf (1978, 1988, 1989): In the special variant of German 'cooperative' federalism, vertical and horizontal coordination adds to the problem of the vertical assignment of functions. In his work on the joint-decision trap in Germany, Scharpf maintains that the problem solving capacity of cooperative federalism is chronically suboptimal so that the capacity to innovate in federalism is noticeably reduced (see also Schmidt 2001, p. 477).

In the political discussion in Germany, these results constitute an important argument against German cooperative federalism and they are discussed in several recent contributions (Darnstädt 2003). Indeed, some authors, like Blankart and Mueller (2002), hold the second chamber (Bundesrat) partially responsible for the missing reforms in Germany. When the current German growth weakness is considered, that largely depends on the lack of the political system to innovate, then the importance of political innovations for the national development of a country is apparent. But the discussion in this section also underlines that the impact of federalism on growth is multi-dimensional such that it is insufficient to compare federalism and unitary states. Instead, it seems reasonable to more closely look at the design of the federal system and in particular on the decentralized provision and financing of public services.

2.3 Federalism and regional convergence

This verdict is still more obvious if another line of research is considered. It is often maintained that fiscal federalism in its competitive form with far-reaching competencies of the subnational levels to decide on revenue and functions leads to a situation in which poor regions become poorer and rich regions become richer (Feld 2002, Feld and Kirchgässner 2003, Thierstein et al. 2003). The more high income taxpayers reside in a region, the lower its tax burden is supposed to be. Poor regions, however, presumably need high taxes to be able to finance the infrastructure necessary for economic development. If these jurisdictions enter fiscal competition, then, so the argument, economic differences between regions are maintained or even increased. Fiscal competition should then be eliminated by harmonization or centralization of fiscal policies and supplemented by a grants system designed to equalize regional fiscal potential. According to this line of thought, central government fiscal policy finds itself in the leading role to ascertain sufficient regional development, while the question whether national growth is positively affected usually remains unanswered.

Ludema and Wooton (2000), Kind, Knarvik and Schjelderup (2000), Justman, Thisse and van Ypersele (2002), Brakman, Garretsen and Van Marrewijk (2003) as well as Baldwin and Krugman (2004) analyze the effects of fiscal competition on the economic development of central and peripheral regions, with especially the last two groups of authors arguing explicitly on the basis of New Economic Geography. The advantages of agglomerations in the economic centers permit these centers to raise higher taxes than the peripheral regions (Borck and Pflüger 2004). An example from the EU may illustrate this. The Rhine region comprised of Dutch, Belgian, French, German and Swiss regions offers enterprises sizable advantages from excellent infrastructure, from well-established relations with customers and suppliers, and with a highly qualified workforce so that it can afford relatively high tax burdens. Peripheral regions, like Ireland or Portugal, have hardly other alternatives to balance their locational disadvantages than tax policy and the public investment in infrastructure for enterprises. They must try to attract enterprises through an appropriate mix of tax burden and public services. Similar considerations can, looking at Germany, be made with respect to the relation between the regions in the Southern Lander (Baden-Württemberg, Bayern), which develop economically in a dynamic way, and the less developed Western Lander (Schleswig-Holstein, Saarland) or the East German Lander. Limiting fiscal competition would take away the few instruments from the peripheral regions to compensate – at least partially – their locational disadvantages vis-à-vis the center, and it would thus be harmful for regional development.

Beyond all this, the question can be asked whether fiscal transfers as means of fiscal equalization can support regional development processes. For the formation of agglomerations and hence for regional economic growth the factor 'knowledge' and the existence of knowledge-spillovers are, as mentioned before, of decisive importance. Döring (2002) analyzes the implications for the design of vertical and horizontal fiscal relations. When considering the adequate degree of centralization of growth policy and regional policy and the relevance of regional innovation networks and of regionally limited innovative milieus for the generation and diffusion of knowledge, much speaks in favor of a considerable decentralization of the existing governmental instruments. Looking at the horizontal dimension of fiscal relations and given the understanding of the interaction between regionally limited knowledge externalities, regional growth poles, and the resulting agglomeration advantages, good reasons must support the interregional transfers that supposedly support regional growth. From the perspective of a growth-oriented system of fiscal equalization, the distributive motivation of inter-regional transfers has to become less important. Similar arguments are found in the discussion on how to reform the German fiscal equalization system (Zimmermann 2001a).

3. The results of previous empirical work

The existing theoretical results do not provide clear-cut evidence on the impact of fiscal federalism on economic development. However, they do also not contradict the hypothesis, that it is favorable for economic growth to assign far-reaching competencies to tax and to provide public services to the subnational levels: Among the few federations world-wide, high income countries dominate (Dillinger 1994). Well-functioning sub-central units are thus at least not an obstacle for the generation of high income. Moreover, it has been observed for quite some time that remarkably few elements of a federal governmental structure can be found in developing countries. Nevertheless, the influence of federalism on economic development has hardly been analyzed empirically in a systematic way. Oates (2002) states with respect to these studies: „Unfortunately it does not give us a consistent set of results".

3.1 Cross-country studies

The authors of the few studies on the impact of federalism on economic development that have been conducted on a cross-country analysis indeed end up with controversial results (see Table 1). Davoodi and Zou (1998), for instance, find a weakly significant negative correlation between the degree of fiscal federalism and the average growth rate of GDP per capita for a sample of 46 countries and the period from 1970 to 1989.

This effect is not significant for the sub-sample of developed countries. The negative influence for developing countries is however robust, though only weakly significant as well. According to these estimates, an additional decentralization of functions by 10 percent reduces the growth of real GDP per capita in developing countries by 0.7 – 0.8 percentage points. Woller and Philipps (1998) do not report a robust relation between economic growth and decentralization, using a sample with a lower number of developing countries and a shorter period. Also, they analyze, in addition to the average growth rates for five years, the annual growth rates in a panel. Both studies use fixed-effects-models. In contrast to Davoodi and Zou, Woller and Philipps consider a common time trend by including a trend variable.

Table 1: Empirical studies on the influence of fiscal decentralization or federalism on economic growth in cross-country studies

Study	Countries	Period	Method	Main results
Davoodi and Zou (1998)	46 Developing and Developed Countries	1970-1989 five and ten year averages	Fixed Effects Model, Time Dummies, Unbalanced Panel	10% higher decentralization of spending reduces growth of real GDP per capita in developing countries by 0.7-0.8%-points (10% significance level)
Woller and Philipps (1998)	23 Developing Countries	1974-1991 three and five year averages and annual data	Fixed Effects Model, OLS	No robust significant effect of the decentralization of spending or revenue on growth of real GDP per capita
Yilmaz (2000)	17 Unitary States 13 Federal Countries Newly Industrialized Countries and Developed Countries	1971-1990 annual data	Fixed Effects Models, Time Dummies, GLS	Decentralization of expenditures at the local level increases growth of real GDP per capita in unitary states more than in federal countries. Decentralization at the regional level is not significant
Enikolopov and Zhuravskaya (2003)	21 Developed and 70 Developing and Transition Countries	Cross-section of the averages 1975-2000	OLS, 2SLS	10% higher decentralization of revenue reduces growth of real GDP per capita in developing countries by 0.14%-points (5% significance level)
Thießen (2003)	21 Developed Countries	Cross-section of the averages 1973-1998	OLS	Decentralization of spending by 10% increases growth of real GDP per capita by 0.15%-points (5% significance level), quadratic term is significantly negative
Thießen (2003a)	26 Countries	Panel data 1981-1995	GLS	Decentralization of spending by 10% increases growth of

real GDP per capita by 0.12%-points (5% significance level).

Additionally considering institutional aspects, Enikolopov and Zhuravskaya (2003) present evidence for average economic growth of the past 25 years in a cross-section of 91 countries that the effects of fiscal decentralization largely depend on the structure of the party system as well as on the degree of „subordination“ of subnational levels. According to these results, the age of the most important political parties is favorable to the positive effects of decentralization on economic growth particularly in developing and transition countries. In countries with a – in this respect– weaker party system a 10 percent higher decentralization of revenue decreases the growth of real GDP per capita in developing countries by 0.14 percentage points. These results challenge those by Martinez-Vazquez and McNab (2002) according to which the decentralization of revenue significantly reduces growth of real GDP per capita of developed countries, but not of developing and transition countries. Yilmaz (2000) analyses the different effects of fiscal decentralization in 17 unitary and 13 federal states for the period 1971-1990 with annual data. Decentralization of expenditures to the local level increases the growth of real GDP per capita in unitary states more than in federal countries. However, decentralization to the regional level in federal countries is not significant. Thießen (2003) analyses, similar to Enikolopov and Zhuravskaya (2003), the average growth rates of real GDP per capita for a cross-section of 21 developed countries in the period 1973-1998 and in a companion study (Thießen 2003a) for a panel of 26 countries and the period 1981 to 1995. According to his estimates a 10% stronger decentralization of expenditures increases the growth of real GDP per capita by 0.12-0.15%-points in high-income countries. But the relation between federalism and economic growth might be non-linear as a quadratic term of expenditure decentralization is significantly negative.

3.2 Studies for China, Ukraine, the U.S. and Germany

The empirical results concerning the impact of decentralization on economic growth for individual countries are no less ambiguous. Analyses have been conducted for China, the Ukraine the U.S., and Germany. Zhang and Zou (1998) report a significantly negative effect of expenditure decentralization on economic growth in 28 Chinese provinces, using annual data between 1987 and 1993. Jin, Qian and Weingast (1999), however, find a weekly significant positive effect of expenditure decentralization on the economic growth of almost the same sample of Chinese provinces over time. The most important difference between the studies – aside the small differences in the explanatory variables used – consists in the fact that Zhang and Zou do not use time dummies. Consequently, the common positive and negative economic shocks in China are inadequately included as compared to Jin et al. Qiao, Martinez-Vazquez and Xu (2002) report similarly positive growth results for expenditure decentralization even without any fixed effects. Lin and Liu (2000) corroborate the result of a positive impact of decentralization on economic growth in Chinese provinces for the period 1970 to 1993 also for the revenue side. Moreover, a higher responsibility of public budgets at the provincial level is associated with increased economic growth. These authors, too, use time dummies in addition to cross-section fixed effects. The relevance for the estimates of using time dummies points to the strong economic dynamics in China. The sometimes enormously high Chinese growth rates apparently cannot be exclusively covered by structural variables such that dummy variables for the individual years are necessary for specifying the model. The fact that Zhang and Zou neglect them must be interpreted as a misspecification of the model. Thus, for China, there exists a positive impact of decentralization of governmental activity on economic growth. This does however not generally hold for transition countries. Naumets (2003) finds a negative, though not robust impact of the share of own revenue from consolidated regional revenue on growth of real gross value added in a panel of 24 Ukranian regions from 1998 to 2000.

Table 2: Empirical studies on the influence of fiscal decentralization or federalism on economic growth in China and Ukraine

Study	Countries	Period	Method	Main results
Zhang and Zou (1998)	28 Chinese Provinces	1987-1993 Annual Data	Fxed Effect Models without Time Dummies	Decentralization of expenditure to the provinces reduces growth of real GDP per capita
Jin, Qian and Weingast (1999)	29 Chinese Provinces	1982-1992 Annual Data	Fixed Effect Models, Time Dummies	Expenditure decentralization by 10% increases growth of real GDP per capita by 1.6%-points (10% significance level)
Lin and Liu (2000)	28 Chinese Provinces	1970-1993 Annual Data	Fixed Effect Models, Time Dummies	Revenue decentralization by 10% increases growth of real GDP per capita by 2.7%-points (5% significance level)

Qiao, Martinez Vazquez and Yu (2002)	28 Chinese Provinces	1985-1998	2SLS with Pooled Data	Expenditure decentralization increases growth of nominal GDP per capita significantly (5% significance level)
Naumets (2003)	24 Ukrainian Oblasts and Autonomous Republic of Crimea	1998-2000	Fixed-Effects and Random Effects Models	Not robust negative impact of own revenue decentralization on growth of real gross value added

Much the same holds for individual developed countries. Exploring American economic development between 1790 and 1840, Wallis (1999) argues that fiscal federalism was an important institutional precondition that fostered economic growth of the U.S.. In a time-series analysis for the whole of the USA from 1951 to 1992, Xie, Zou and Davoodi (1999) claim that the U.S. find themselves in a decentralization equilibrium because differences in decentralization at the state level or at the local level do not have statistically significant effects on the real GDP growth. Akai and Sakata (2002), however, offer evidence to the contrary for U.S. states. Taking into account additional explanatory variables and various indicators for the degree of fiscal federalism, they underline the positive influence on economic growth. If expenditure decentralization increases by 10 percent, then the growth of GDP per capita increases by 1.6-3.2 percentage points. However, decentralization on the revenue side and indicators for fiscal autonomy of subnational levels, measured by the share of own revenue in total revenue, do not have any significant impact.

Table 3: Empirical studies on the influence of fiscal decentralization or federalism on economic growth in the U.S. and Germany

Study	Countries	Period	Method	Main results
Xie, Zou and Davoodi (1999)	Central Level in the USA	1951-1992	Time Series Analysis, OLS	No significant impact of expenditure decentralization on growth of real GDP per capita
Akai and Sakata (2002)	50 US States	1992-1996, Cross-Section of Average Growth Rates, Panel with Annual Data	OLS and Fixed Effects Model, Time Dummies	Expenditure decentralization by 10% increases growth of GDP per capita by 1.6-3.2%-points (robust 10% significance levels)
Berthold, Drews and Thode (2001)	16 Lander	1991-1998	Fixed Effect Model without Time Dummies	Higher horizontal and vertical grants significantly reduce growth of nominal GDP per capita
Behnisch,	Central Level	1950-1990	Time Series	Increase of federal share of

Büttner and Stegarescu (2002)	in Germany	Analysis	expenditure in total expenditure has positive effect on German productivity growth

Meanwhile, two studies have also been conducted for Germany. Berthold, Drews and Thode (2001) analyze the effects of horizontal fiscal equalization between states and of supplementary federal grants on the regional economic development of the 16 Lander in a panel analysis with annual data from 1991 to 1998. According to their estimates higher grants in horizontal and vertical fiscal relations reduce the growth of nominal GDP per capita of the Lander significantly. Behnisch, Büttner and Stegarescu (2002), however, report a positive effect of increasing federal activities – measured by the share of expenditure at the federal level – on German growth of productivity in a time series analysis from 1950 to 1990. Further empirical studies on the relation between fiscal federalism and economic development are missing.

4. Discussion of the existing theoretical and econometric analyses

This survey on the theoretical and empirical literature of the impact of federalism and decentralization on growth seems to imply at first sight that such a relationship is not unambiguously supported empirically and that the theoretical considerations on the existence of such a relationship are insufficient. At a second inspection, the existing analyses point at the necessity to analyze the issue more systematically by linking theoretic and empirical analyses. The existing empirical studies either start from the political discussion, a discussion of the efficiency aspects of fiscal federalism, or from endogenous growth models which however lack microfoundation. In this case it seems useful to differentiate between the transmission mechanisms through which fiscal decentralization works.

Following the considerations in section 2, federalism could influence regional agglomeration processes. This occurs, for instance, via a focus on regional infrastructure, via investments in human capital aiming at regional needs, or by shaping the regulatory framework at the sub-federal level in an appropriate fashion. It can be brought about by a mixture of regulations, administrative processes, or appropriate tax prices for public services. This mixture is essentially determined by the autonomy of lower levels of government, with tax autonomy being of particular relevance. An important role for regional economic development is to be seen in the capacity of the political system to react to economic challenges via new proposals for economic policy solutions, aimed at regional needs. Federalism could, through its decentralized provision and financing of services, favor political innovations and thus promote economic activity at the regional level. This decentralized government spending policy would have to occur in the form of a specialized design of infrastructure and human capital investments and in interaction with the innovations of firms. The relation of private innovation to governmental policy is not modeled in the existing studies, however. In future studies a step forward could be made by theoretically modeling regional innovation processes and the influence of governmental policy on them more precisely. At the outset of such a perspective would have to be an endogenous growth model, based on New Economic Geography, which permits to depict the interaction of political and entrepreneurial innovations. The modeling of political innovations, which has been neglected in economics so far, is in this case of considerable importance.

The degree of decentralization of revenues as well as of expenditure seems to be too crudely measured in this context to appropriately describe the autonomy of lower level governments. At the center of the theoretical considerations is the possibility to be able to shape politics according to regional and local needs. The measures mentioned above are problematic, because they do not necessarily encompass the actual decision-making competencies of lower level governments in public finance. Mexico and Argentine, for instance, show a relatively decentralized government structure, if measured by the share of the sub-federal in total governmental expenditure. But the regional level governments are mainly dependent on transfers of the federal government which, moreover, are distributed according to political opportunism (Feld 2003). Some expenditure programs are only administered on a decentralized level, without permitting the lower level governments many decision-making competencies. Treisman (2002), therefore, discusses several additional variables, like the decentralization of public administration and the autonomy of appointing or electing local representatives, beside of fiscal decentralization for 154 countries.

Almost all empirical studies have in common that the degree of fiscal federalism is mainly measured by the share of lower level governments in total governmental expenditure or revenue, or they measure the degree of centralization of governmental activity by the share of a central government in total governmental expenditure or revenue. Ebel and Yilmaz (2002) start from this critique and find that, when decision-making competencies of lower level governments in tax policy are taken into consideration, there is a positive influence of a federal governmental structure on economic development for 6 transition countries and 3 years. But their sample is much too small to obtain reliable results. Akai and Sakata (2002) note that there is no influence of revenue autonomy on economic growth of USA states. This result possibly is to be seen together with the low variance that the chosen autonomy measures exhibit over time and across states. Lin and Liu (2000), in turn, point at a positive impact of increased revenue autonomy and budget responsibility of Chinese provinces with economic growth. Particularly, when several countries are compared, a closer consideration of the actual autonomy of lower level governments seems to be reasonable in the future.

Astonishing are the opposite empirical results for development and transition countries, as reported in section 3. This can be traced back to the fact that the decentralization process there leads to very heterogeneous results and, in many of these countries, to anything but a step towards a market-preserving federalism in the sense of Weingast (1995). In their critique Rodden and Rose-Ackerman (1997) point out that local interest groups can, through decentralization of governmental activity, be given the opportunity to pursue competition-limiting politics and thereby to skim off economic rents. Bardhan and Mookherjee (2000) as well as Bardhan (2002) point out that, when looking at decentralization processes, a trade-off between the possible gains through competition between jurisdictions and the possible losses due to an easier access of locally concentrated interest groups to the political decision-makers is faced. Brueckner (2000) even attributes this rent-seeking of local interest groups to corruption. Decentralization in developing countries, he argues, increases corruption, because additional decision-makers have to be bribed in that case. Treisman (2001) points at the susceptibility also of central governments to corruption. It means that decentralization of a corrupt regime may result in corrupt officials now expecting bribes also locally, while the government at the central level has to be further „served“. But decentralization can, through horizontal competition between regions and between local governments, reduce local rents through competition, while corruption at the central level remains. Here as well, empirical evidence is mixed. Fisman and Gatti (2002) provide evidence, for a cross-section of 55 countries, that decentralization leads to less corruption. Treisman (2002a), in turn, shows contrary evidence for up to 166 countries.

The argument of Weingast (1995) that federalism serves as a credible pledge of a strong central government not to confiscate (partially) specific investments, rests on the assumption that these governments are actually able to assure property rights. But in many developing and transition countries this is not the case. The reasons which were given for a positive relation between federalism and economic growth in section 2 might mainly be valid in democratic countries with sufficient experience with the rule of the law. In developing and transition countries, the rule of the law and democratic traditions still have to emerge so that the advantages of decentralization can develop. In these countries the situation is often worsened by ethnic conflicts and possible efforts to secede, with situations close to civil war. More fiscal federalism with the concomitant autonomy can be peace-enhancing, but also secession-enhancing (Treisman 1999, 2002b). Because of the rather insecure institutional and political situation in developing and transition countries it is therefore advisable to analyze the effect of federalism on economic growth mainly in high-income countries.

In high-income countries in particular it cannot be sufficient to rely only on the expenditure or revenue share of lower level governments in total governmental expenditure or revenue. The federal OECD countries are very different in institutional terms. Switzerland, Canada and the U.S. rather rely on a model of competitive federalism, though some elements of a cooperative federalism also play a role. Germany, Australia and Austria rather tend to a cooperative federalism and exclude competition between lower level governments to a different degree. In this case the difference between federal and unitary or between more or less decentralized systems is less important than the actual autonomy of lower level governments in fiscal policy, taken together with the degree of tax and expenditure competition (respectively their export), with the degree of exploiting economies of scale in the consumption of public goods, and with the design of various instruments of fiscal equalization. Thus, it is the individual instrument of federalism, the economic effects of which have to be analyzed more closely. For instance one might ask to what extent a constitutionally induced obligation of the federal government to bail-out debt of its states in cases of budgetary emergency has the effect that necessary structural adjustments are postponed such that these states fall back in structural change. If the analysis concentrates on high-income countries, a number of econometric difficulties have to be taken into account. The number of OECD countries in question is too small to obtain valid results in a cross-section analysis. The same is true for the sample of the German Lander and the Swiss cantons, but also for US states, not to speak of Austrian Lander, Canadian provinces or Australian states and territories. Thus only panel studies provide valid estimates of the influence of federalism on economic growth in an endogenous growth model, taking into account the typical control variables.

5. Concluding remarks

Whether federalism actually leads to more economic growth, because a regionally oriented fiscal and economic policy helps to foster regionally concentrated agglomeration processes or because competition between jurisdictions leads to more political innovation, or because competitive federalism reduces distortions in political economy terms, must remain open. The empirical evidence reported in this paper does not provide for unambiguous results on the impact of a higher decentralization of governmental activity on economic growth. This is in particular true with respect to developing countries, where decentralization processes could in the end lead to higher levels of corruption. The existing studies make it appear desirable to approach this set of questions systematically and to observe the following:

1. Conclusions on the relation between federalism and growth can only be obtained on the basis of endogenous growth models in which the regional process of economic agglomeration is explicitly taken into consideration.
2. Due to the specific problems in developing and transition countries it is necessary to limit the empirical analyses to high income-countries.
3. This requires the use of panel analyses for a sample of OECD countries or for the regions of individual OECD countries, like Switzerland or Germany.

4. The degree of decentralization should not be measured by the share of lower level governments in total governmental expenditure or revenue. In turn, it seems necessary to measure the differences in actual autonomy between jurisdictions. Beyond this, it appears reasonable to look at the various instruments of cooperative federalism and of competitive federalism, like fiscal equalization and grants, tax competition, or tax export.

The current discussion in Germany, but also in other federal and unitary countries requires to more closely study the advantages and disadvantages of federalism or of fiscal decentralization. What finally matters, is the question which instruments of federalism contribute to economic development of regions via which transition mechanisms and how they ease structural adjustments. Not more, but also not less.

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