

COORDINATION, KNOWLEDGE, AND SUPRANATIONAL FEDERALISM:
AN ORGANIZATIONAL PERSPECTIVE

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Coordination, Knowledge, and Supranational Federalism: An Organizational Perspective

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Abstract

Fiscal federalism theory has begun to endogenize the insights of modern organizational economics, especially those of agency and transaction-cost approaches. We follow the lead by endogenizing knowledge-based theories too. We show how the theoretical forerunners of local public finance recognized, if in different degrees, the knowledge perspective. We stress that the distribution of dispersed knowledge is the unknown rather than the given variable. Whence our central conclusion: knowledge coordination is generally more important than incentive or transaction-cost coordination. This conclusion yields new implications about the vertical organization of the public sector – hence about welfare. Our concrete illustration is supranational federalism.

Key Words

Fiscal federalism, economic organization, coordination, supranational federalism, knowledge, competencies, capabilities, vertical integration, public sector, local public finance, EU.

JEL Codes

D20, D23, E60, E61, E62, F02, H11, L22.

Introduction

Recent contributions to the economic theory of fiscal federalism, or, more precisely, to the economic theory of the vertical organization of the public sector (Oates 1999), are beginning to seriously consider the modern literature on the economics of organization (inter alia Weingast 1995; Crémer et al. 1996; Montinola et al. 1996; Saiegh and Tommasi 2000; Iaryczower et al. 2001; closely-related studies include Tirole 1994; Persson and Tabellini 1996a,b; Hart et al. 1997; Alesina and Perotti 1998; Crémer and Palfrey 1999; and Williamson 1999). These so-called second generation economic theories of federalism adduce a rationale for such consideration that is not unfamiliar: much like the neoclassical theory of the firm, previous approaches to fiscal federalism, so-called first generation economic theories of federalism, consider the state as nothing more than a black box (Qian and Weingast 1997). The black box view, as such, does not consider, among other things, the organization of the state in terms of agency (e.g. Alchian and Demsetz 1972), transaction-cost (e.g. Williamson 1985) and property rights (e.g. Hart 1995) matters.

The second-generation literature is a major step forward. The present essay attempts to walk an additional step of this difficult terrain. Its primary motivation is to bring the second-generation literature into contact with yet other fruitful insights of the modern-day economics of organization.

In most general terms, the state is an organization in the sense that it implies asymmetrical authority relationships among constituents through which it is attempted to pursue collective action (cf. Olson 1965). As such, the state is certainly not immune from incentive and opportunism problems. This does not at the same time mean that as a matter of fact the state is just as any other organization: the state does not only set its

own rules (its explicit or implicit constitution), but also sets the general rules of its institutional environment (Vanberg and Buchanan 1986).

Still, interpreting the state expressly along its organizational dimension has analytical substance: it reminds one, in more specific terms, that the state, similarly to a firm, is also about the division and coordination of different, individual knowledge to pursue some more-or-less well-defined ends. We think that this individualistic view of the state that sees coordination as central may be of use to professional students of public finance at least as much as incentive and opportunism views (cf. e.g. Langlois and Robertson 1995; Langlois and Foss 1999).

This work is principally about the organization of states *qua* organizations. The just exposed individualistic view of the state proper of political economy can in fact also be extended to international political economy without fallacy of composition (Frey 1984): in shifting the scope of economic analysis from the national to international level, one keeps the assumption that the state originates from, and has meaning and survives only because of, the wants of individuals. At the international level of analysis the state is still nothing more than the summation of individual wills the public cost schedule of which (abstractly) remains an average and not a marginal one (Buchanan 1949).

This characterization of the state allows one to discuss supranational federalism from the point of view of organizational theory. The pages that follow suggest that much of the recent organizational logic surrounding the encouragement of independent sovereign states to organize into a federal political and economic system implicitly rests on an interpretation of federalism that does not view states as organizations trying to coordinate different, idiosyncratic knowledge or competencies.

In practical, normative terms we contend that this interpretation may be equivalent to suffocating at birth the possibility for competence to be employed in its most productive fashion in that, much like a holistic position in methodology, by concentrating on achieving the beneficial properties of the whole one often throws away the knowledge of the individual parts. Or, perhaps more precisely, it may be equivalent to viewing all knowledge, even if dispersed, as having the same economic content, and hence the same productive value.

We proceed by successive approximations. We show (1) that the theoretical forerunners of local public finance already implied a coordination perspective of the vertical organization of the public sector; (2) that such perspective is more congruent with the knowledge literature of the economics of organization than with alternative ones; and (3) by using supranational federalism as a concrete illustration, that a coordination of knowledge perspective of public organization has welfare implications so far only partially recognized in the literature.

Fiscal Federalism: Revisiting the Theoretical Forerunners

Two are the principal theoretical forerunners of the economic theory of fiscal federalism: Friedrich A. von Hayek and Charles M. Tiebout. We believe it is useful to revisit in some detail the work of each in order to tease out some points still implicit in the federalism literature.

The pith of Hayek's argument is as follows. Humans have cognitive limitations. Notwithstanding these cognitive limitations, we have a mechanism, often taken for granted, that spontaneously coordinates purposive human action: the market. The market is about individual plan coordination. It is an unintentional social institution

that works as a communication system for price and quantity: it solves the problems associated to our cognitive limitations without anyone's planning. Indeed, for Hayek, the genuine economic problem resides in the division of knowledge. "The problem which we pretend to solve is how the spontaneous interaction of a number of people, each possessing only bits of knowledge, brings about a state of affairs in which prices correspond to costs, etc., and which could be brought about by deliberate direction only by somebody who possessed the combined knowledge of all those individuals" (Hayek 1948, Ch. 2, pp. 50-1).

Equilibrium comes about when an individual's expectation aligns with action. At the level of society, there is instead a tendency toward equilibrium: "under certain conditions, the knowledge and intentions of the different members of society ... come more and more into agreement, or, to put the same thing in less general and less exact but more concrete terms, ... the expectations of the people and particularly of the entrepreneurs ... become more and more correct" (Hayek 1948, Ch. 2, p. 45). It is therefore plan coordination according to expectation rather than mathematical consistency among a set of given variables that matters for equilibrium.

Being about expectation alignment, Hayekian equilibrium is forward-looking and calibrated by trial-and-error learning. The positive properties of the market – and the adjustments to the negative properties – emerge blindly, without conscious optimization. Consequently, no one can substitute the market order with an intentional organization, such as a central planning board, because no one completely possesses the amount of knowledge that is present in the market. Attempts at doing so basically reduce the variety of knowledge present in society. They rarefy individual knowledge, and as a result stifle initiative.

This is why the market is for Hayek (1948, Ch. 4) a “marvel.” In the market, no one’s knowledge is superfluous. The knowledge of all individuals is relevant because unique; not easily reduced to quantitative value, rather always inherently qualitative. The knowledge that effectively is a “sufficient statistic” becomes so spontaneously (think of price and quantity). “If we can agree that the economic problem of society is mainly one of rapid adaptation to changes in the particular circumstances of time and place, it would seem to follow that the ultimate decisions must be left to the people who are familiar with these circumstances, who know directly of the relevant changes and of the resources immediately available to meet them” (Hayek 1948, Ch. 4, pp. 83-4).

Thus, the general Hayekian viewpoint: decentralization is more effective at coordinating dispersed knowledge than centralization. This has largely been interpreted to mean, by analogy, that decentralized public good provision is “more” welfare-enhancing than its centralized alternative. Yet, little is said in these interpretations about the difficulties of this institutional design problem. In a fashion reminiscent of the ad hoc, it is often simply adduced that the market is superior to alternatives because of its competitive nature – therefore public finance organization should simply emulate it.

In recent interesting studies tying fiscal federalism to new institutional theories of organization and public choice for example, Weingast and his coauthors argue that local decentralized organization of the state is a way to obtain “market-preserving federalism.” This is, they suggest, the only way to assure that the monopoly of the state serves the interests of its constituents (e.g. Weingast 1995; Montinola et al. 1996; Qian and Weingast 1997). But little is said about how to go about building such

market-preserving institutions. Market-preserving federalism “theory ... is more concerned with de facto decentralization of political power than with de jure institutional distinctions” (Rodden and Rose-Ackerman 1997, p. 1525).

Hayek was instead well-aware of the difficulties associated with implementing decentralized public systems, and of intentionally creating institutions mimicking the market more generally. In particular, he knew that such institutions could not replace the market or be just like the market. At best, such institutions could aid the role of the market. Those same cognitive limitations that bring about the market, suppress the intentional creation of market-like institutions. In his discussion of supranational federalism (more on which later), he in fact tells us that 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 beneficently as possible; and it will have to supplement the working of the competitive mechanism where, in the nature of the case, certain services cannot be brought forth and be regulated by the price system” (Hayek 1948, Ch. 12, pp. 268-9).

In the Hayekian view, moreover, decentralization is not superior in absolute terms to centralization. If one concedes that we live in a world of change, the point is that in a decentralized system people may more readily adapt to change that is of a routine type. When, however, change is nonroutine – when it doesn’t involve just price and quantity but also the qualitatively new, such as technological or public policy changes – centralized organization (think of the firm) may be more appropriate (cf. Langlois and Robertson 1995).

Nowhere is this point perhaps more evident than in Hayek’s discussion of competition, a conception well-suited for economic as well as for political processes

(cf. Volckart 2001, p. 336). Competition is not the one of neoclassical theory, where lack of diversity among all variables involved (e.g., commodities, participants, technology, production knowledge) is what one is after. Competition is also about different knowledge transmission; as such, it embeds its own adaptive mechanism, to wit, the learning of different individuals each pursuing his or her own ends. In consequence, it is not, for example, the homogenous commodity or the constant source of supply that matters, but quite the opposite: diversity. Diversity facilitates adjustment processes through the discovery of new opportunities; and one way this is accomplished is by allowing different kinds of institutions to perform their different roles (Hayek 1948, Ch. 5; 1978, Ch. 12).

Public institutions should, like a market, in principle economize cognitive efforts in order to facilitate human action. They should, as it were, fulfill the role of behavioral lighthouses. One may therefore argue that to Hayek decentralized public finance, as the market and social institutions more generally, regards knowledge coordination as well. And yet, the knowledge coordinated through local jurisdiction institutions is not necessarily isomorphic to that coordinated by the market. Moreover, Hayek's position about implementing federal institutions is less simplistic than most interpretations have it.

These more explicit federal considerations naturally bring us to Tiebout. Arguably, the *pure* economic theory of fiscal federalism begins with Tiebout's 1956 article, "A Pure Theory of Local Expenditures." The article is a critique of the Samuelson and Musgrave public finance argument. In the Samuelson-Musgrave argument, public good allocation is often not "optimal." Unlike a market setting where consumers and producers reveal their preferences for private goods through supply and

demand interaction, there is no market-type solution to determine the level of expenditures of public goods. The typical outcome in a public setting is in fact free-riding. The non-excludability and non-rivalry properties of a public good assure that the public good is consumed irrespective of complete preference revelation. A constituent – “consumer-voter” – tends to minimize preference revelation, a magnitude directly related to personal tax burden, for he understands that he will still enjoy the public good thanks to the taxes paid by others. This “market failure” calls, in the Samuelson-Musgrave argument, for state intervention along Pigovian lines.

But two major questions arise. First, how can the state “force” the full disclosure of consumer-voter preferences? Second, assuming full disclosure, can these preferences be satisfied like in a private goods market? Answering these questions is equivalent, according to Tiebout, to finding the “optimal” solution to the problem of taxation. And the answer to these questions, Tiebout further observes, rests on devising “social institutions” the organization of which leads to market-like organization, viz., in finding public institutions that allow consumer sovereignty in the form of spatial mobility among competing jurisdictions according to public good preference.

Tiebout hence presents an extreme model of local government expenditure where he tries to determine the optimal level of public goods through a mechanism of preference revelation of consumer-voters. He criticizes the Musgrave-Samuelson assumption that expenditures for public goods are handled at the central government level by arguing that several government services are provided at the local level too. Accordingly, he presents a spatial mobility model whereby consumer-voters select their preferred supply of public good by selecting among competing local jurisdictions: the consumer-voter discretionally moves to that community which most satisfies his

set of preferences. Hence, “people vote with their feet.” The Tiebout model is so able to represent the preferences of the population more adequately than national level models; and at the same time yield a solution for the level of expenditures for local public goods.

As Tiebout himself often underscores in his article, he is presenting a model with extreme assumptions. But what he was after in his purely theoretical piece, we mentioned, is actually an institutional design problem. To Tiebout the attempt to approximate a market of the public sector is in fact nothing more than a heuristic expedient devised to illustrate a bargaining problem or, if you prefer, a knowledge problem. In transaction-cost terms, it is an informational or public-good externality that impedes the optimal amount of public good provision, that is, the equivalence between the sum of the marginal rates of substitution and marginal cost à la Samuelson. This is particularly clear if one thinks that the optimal amount of public good provision is a relative or comparative matter: it varies with jurisdiction, notwithstanding mobility (cf. Oates 1999, p. 1124). This point is not inconsequential, for it shifts the focus from “market failure” considerations to comparative institutional analysis. This opens the door to different institutional arrangements for the internalization not only of physical externalities, such as pollution, but also of those concerning production and exchange – in short, to problems of economic organization or knowledge (cf. Coase 1960; Dahlman 1979; Langlois 1984; Crémer et al. 1996). “Policies that promote residential mobility and increase the knowledge of the consumer-voter will improve the allocation of government expenditures in the same sense that mobility among jobs and knowledge relevant to the location of industry and labor improve the allocation of private resources” (Tiebout 1956, p. 423).

Although Tiebout arguably leaves matters open as concerns possible advantages of local government in internalizing public-goods or informational type externalities (Crémer et al. 1996, pp. 41-3), the role played by taxes in his model is nonetheless a knowledge one: taxes perform a communication function for local public goods similar to that of the price system for private goods. And it is the process of competition that transmits such knowledge, that reduces the uncertainty tied to marginal public good pricing. Tiebout can thus be interpreted as implicitly endorsing an *ante litteram* Coase Theorem-like process. The implied alternative real-world institutions for knowledge transmission – preference revelation – that are compared are the voting mechanism and local public finance. And the balance, as known, tips in favor of local public finance. But the *spirit* of comparative institutional analysis is in Tiebout as well. “A general reduction of costs along with a reduction in one or more of the services provided cannot be justified on economic grounds unless the social welfare function is known. For example, those who argue for a metropolitan police force cannot prove their case on purely economic grounds. ... If one of the communities were to receive less police protection after integration than it received before, integration could be objected to as a violation of consumer’s choice” (Tiebout 1956, p. 423).

In the Tiebout model the parties involved in the bargaining or communication process are the consumer-voters and the state *qua* organization. And it is the state that by means of this process should respond effectively to the needs of the consumer-voter (Tiebout 1956, p. 417). In the “Tiebout model ... local jurisdictions use benefit taxes that effectively *communicate* to households the cost of consuming different levels of local public goods; this results in an efficient pattern of consumption of these goods.

But this is true not only for households. If local governments provide local inputs that increase the productivity of capital employed in their jurisdictions, then they should levy benefit taxes on capital in order to provide the *set of signals* needed for the efficient deployment of capital across localities ...” (Oates 1999, p. 1125, emphasis added).

Or, to put it all in different words, when preference heterogeneity is high, it makes economic sense, for the provision of public goods, to reduce the “cognitive distance” between constituent and body polity. The minimization of “cognitive distance” between constituent and body polity through fiscal decentralization is the “program” one wishes to solve when searching the solution space of the vertical organization of the public sector. Because it involves the coordination of dispersed and idiosyncratic knowledge, the solution to this program is necessarily an institutional one: creating local jurisdictions for consumer-voter mobility. Not surprisingly, when Tiebout (1956, p. 423) once again points out the extremeness of his model by relaxing one of its assumptions he says that “in cases in which the external economies and diseconomies are of sufficient importance, some form of integration may be indicated.”

Let us take care at this point not to be misunderstood. We are not maintaining that, as a matter of rhetoric, the Tiebout article is a break from “conventional” theory. That is, there is no doubt that the implicit benchmark against which the rhetoric of the Tiebout model rests is that of perfect competition theory – a theory devoid of any institutional substance. If we nevertheless separate the rhetorical chaff from the substantive wheat we perceive a viewpoint that suggests that institutional considerations are of the essence for questions concerning the organization of the

public sector. This oblique institutional viewpoint singles out how the fundamental hinge on which *pure* fiscal federalism questions rest is knowledge and its attempt to coordinate it. This moreover brings to light the hypothesis that Tiebout, like Hayek, was also aware of the complexities associated to the creation of public finance institutions.

Economics of Organization I

The modern economics of organization, on which the second-generation economic theory of federalism to a large extent currently rests, addresses the following three issues.

- The existence of a firm.
- The boundaries of a firm.
- The internal organization of a firm.

The “Nature of the Firm” by Coase (1937) is the seminal of the field. By focusing the attention of economists on the simple fact that firms exist in market systems, Coase attempted to challenge the black box interpretation of the firm by advancing the idea that there is a cost of using the market – now universally called transaction cost. The existence of the firm rests on economizing transaction costs; put crudely, costs tied to knowledge problems. Transaction costs are economized by substituting many short-term incomplete market contracts with one, longer-term incomplete contract – the one of the firm.

In a series of important works spanning over three decades, Williamson (e.g., 1985) “operationalized” the work of Coase by focusing all analytical attention on the transaction. In specific, Williamson places exchange rather than production at center

stage in order to judge in a comparative static fashion the alternative governance structures (normally: market, firm, and hybrid) best suited to internalize economic activities. By further emphasizing bounded rationality in the Simonian sense, he argues that all contracts are necessarily *ex ante* incomplete. As a result, what is important is the establishment of institutions that *ex post* solve contingencies – usually problems arising from imperfect information, such as contract renegotiation, breach of contract, lack of commitment, hold-up, shirking, and so on. What favors the selection of one governance structure over another? Two are the factors: considerations of asset specificity, i.e., the lack of fungibility of tangible and intangible productive assets (Klein et al. 1978); and of opportunistic behavior, i.e., “self-interest seeking with guile” (Williamson 1985, p. 47). The combination of significant asset specificity and opportunism may in fact generate post-contractual lock-in into a sterile bilateral monopoly situation where a tussle for Marshallian quasi-rents rules (cf. Alchian and Woodward 1988). Having recognized that standard contracts are an “inefficient” institutional solution when asset specificity and opportunism are present, vertical integration may be the “efficient” alternative. In sum, organizational boundaries change *ex ante* because asset specificity creates *ex post* contractual opportunism.

Next to the transaction-cost, there’s the agency approach, which is perhaps more influential in fiscal federalism. Since the firm entails team production where final output is not divisible in terms of individual input, the problem to solve in this story is that of limiting shirking. Introducing a principal solves the problem of shirking. But how to supervise the principal? By granting the principal the status of residual claimant, one also solves the problem of the principal’s shirking. We obtain in this fashion the classical capitalist firm the internal organization of which presents an

acceptable amount of shirking (e.g., Alchian and Demsetz 1972; Jensen and Meckling 1976).

This approach spawned copious formal variants that, like the transaction cost, all have problems of information at the center stage. Two are the prototypical problems analyzed by the formal literature: the adverse selection; and the moral hazard. Adverse selection occurs at the *ex ante* or contracting stage: the principal cannot easily evaluate the competence of a candidate agent. Moral hazard, the case we shall illustrate in more detail, refers to *ex post* contracting, that is, to problems of competence evaluation after an agent is hired. Note, incidentally, how agency problems can for all practical purposes be considered a subset of opportunism; a point that Williamson (1988) also acknowledges.

Consider a stylized representation of the moral hazard problem (see for example any of the following, Holmström 1979; Macdonald 1984; Martin 1993, pp. 218-23; Prescott 1999). Assume an agent whose von Neumann-Morgenstern utility is a separable function of income (y), in turn a function of output (q), and action or disutility of effort ($a \in [0,1]$): $F = U(y(q)) - V(a)$. He is risk and work averse, i.e., $U_y > 0$, $U_{yy} < 0$, $V_a > 0$, $V_{aa} < 0$. The principal's von Neumann-Morgenstern utility is a separable function of income and monitoring effort disutility ($m \in [0,1]$): $G = H(q - y(q)) - Z(m)$. The principal may or may not be risk neutral, i.e., $G'' \leq 0$.

If the agent performs work, the principal observes $q = a + (\omega/m)$. ω is a random variable $\sim (0, \sigma^2)$ with $f(\omega)$ probability density function. This implies that, *ceteris paribus*, the higher the m , the closer will q be to a , i.e., the more will the principal's observation reflect the true work effort of the agent ($[\omega/m] \rightarrow 0$). Rearranging, we obtain $\omega = (q - a)m$.

The expected utility of the agent is

$$E[F] = \int_y u[y(q)]f[(q-a)m]dy - v(a).$$

Applying Leibniz's rule to $E[F]$, we obtain the first order condition, $\partial[E(F)]/\partial a = 0$,

$$-\int_y u[y(q)]f'[(q-a)m]dy = v'(a).$$

But the more interesting problem is that of the principal. That is, to maximize expected utility $E[G]$ by selecting the fee schedule, $y(q)$, and the monitoring effort, m :

$$\max_{y(q), m} E[G] = \int_y h[q - q(y)]f[(q-a)m]dy - z(m).$$

This program is subject to two constraints. The first is the reservation utility (\bar{F}) constraint of the agent:

$$\int_y u[y(q)]f[(q-a)m]dy - v(a) \geq \bar{F}.$$

The second constraint is what we may call the observation constraint. The principal, we noted, can only observe the agent's output; not the agent's effort in input. So this constraint assumes that the agent seeks to maximize his own utility by selecting the effort a . The key being that the a selected by the agent, say \bar{a} , maximizes the agent's expected utility, $E[F]$:

$$\bar{a} \equiv \operatorname{argmax}_a E[F] = \int_y u[y(q)]f[(q-a)m]dy - v(a).$$

Since, among other things (and to put it loosely), the second constraint is a continuum of constraints, the solution to this principal-agent problem is not an easy matter. In any event, the qualitative point here is that the principal must assure that the

effort picked by the agent, \bar{a} or whatnot, maximizes both expected utilities through $y(q)$. In a very real sense, then, this entails that it is the principal that ultimately picks the agent's a . Internal organization consequently depends on a general solution $\{a, y(q)\}$, namely, on an "optimal" deterministic contract or sharing rule for incentive alignment.

More recently, another approach emerged, known as the "property rights." This approach, mostly due to Hart's work, culminating with Hart (1995), draws on the agency as well as on the transaction cost literature to primarily address the issue of the boundaries of the firm. The firm here is a collection of assets the incomplete contract structure of which generates two types of rights: specific and residual. As their names imply, specific rights are those that can be more or less defined; while the residual ones are not predefined. In this framework, the problem to solve is the wealth-maximizing allocation of residual rights. Clearly, as in Williamson, when there's fungibility of assets problems of opportunism are nonexistent. If the opposite situation prevails, then the most "efficient" course of action is to assign ownership to one party. The party who will be the owner will be the one who will maximize the joint rents deriving from integration. The issue of the firm boundaries, in other words, is one of ownership: the allocation of property rights falls into the hands of those who are the most efficient investors. Consequently, when there's a reallocation of property rights, there's also a change in incentives to invest. In short, in a hypothetical Williamsonian tussle for rents situation, it is not irrelevant whether firm A buys firm B or firm B buys firm A; the distribution of ex post ownership of merged firms is important for net-wealth maximization. We thus have a precise theory of the boundaries of the firm that incorporates the insights of agency and transaction cost theories. In this story the firm

is necessary because contracts are incomplete, and there's a necessity to efficiently allocate residual rights of control (compare also Demsetz 1998).

Economics of Organization II

The briefly covered organizational approaches are arguably the current cornerstone of the second-generation theory of economic federalism, where questions of incentives and opportunism figure prominently. But there is also another literature on organization, addressing the same thorny issues, that not only sees Coase (1937) as seminal, but also, *inter alia*, Hayek (1948, Chs 2, 4 and 5), Alchian (1950), Penrose (1959), and Richardson (1972).

This less known literature – which is also, we shall see, in agreement with our reinterpretation of the theoretical forerunners of local public finance – is known as knowledge, routine, competence or capability perspective (e.g. Nelson and Winter 1982; Dosi and Marengo 1994; Teece and Pisano 1994; Langlois and Robertson 1995). Here institutional analysis is fundamental as well; but not so much for purposes of incentives and opportunism, as for matters of coordination of different, idiosyncratic knowledge. In this literature, the three related issues of the existence, boundaries and internal organization of the firm all boil down to matters of knowledge and its coordination.

Note that this other literature does not at all downplay matters of incentives or opportunism, but merely considers them as secondary to the primary purpose of economic organization, namely, production. Let us then briefly highlight the differences between the two strands of modern organizational theory in order to later provide some substantive implications for federalism.

The transaction-cost, incentive alignment and property rights literatures are all in essence united by information asymmetry. Information asymmetry entails that agents sharing an economic effort also share the same information set. The problem arises in trying to figure out which, of a series of possible possibilities within the shared information set, will manifest (e.g., the ownership of whom will or will not maximize joint welfare?); and the problem is usually solved by attaching a probability distribution, subjective or objective, to the likelihood of one event or another. Differently put, in this literature the parties are involved in a known-and-agreed-upon optimization problem – for example, in *ex ante* selecting one governance structure from a menu of well-known structures in order to *ex post* avoid various well-known productivity problems emerging from indivisibilities in team production or asset specificity. Risk is the dominant situation.

This can perhaps be most easily shown in terms of the moral hazard problem above. In that standard problem, ω implies that the principal cannot evaluate a by just q . This leads to difficulties in the evaluation of marginal input, raising doubts about shirking and about appropriate agent remuneration. So what becomes important is the minimization of ω by costly monitoring; and monitoring the agent and his environment in effect reduces ω . But this is possible because the principal and the agent share the random variable and the density function associated with observable but stochastic production ($\omega, f(\omega)$). This is how the deterministic contract $\{a, y(q)\}$, an “optimal” institution that aligns incentives, can account for stochasticity, agent risk-aversion, and monitoring disutility. Moreover, this is essentially why the principal has a comparative advantage in directing and coordinating productive knowledge, and will act as a benevolent despot by maximizing joint welfare. This problem therefore concerns

hidden or imperfect information, not hidden or imperfect knowledge; it concerns risk, not true uncertainty (cf. Minkler 1993).

The difference between these different cognitive structures can be easily illustrated. Risk allows the categorization of possible states of nature: fire/no fire, win/loss, hold up/no hold up, shirking/no shirking, opportunism/no opportunism, etc. For example, even though there may be asymmetric information as concerns the effort in input, under risk one assumes that all concerned parties know that output could be a function of only, for simplicity, two states: maximum (a_1) or minimum (a_2) effort. Even if the relationship $a_1 > a_2$ may in the immediate post-contractual phase be fully known only to the agent, under risk the principal can always attach, as noted, some probability to the likelihood of each action. And given sufficient observation of agent's work, the principal will ultimately be able to understand the agent's effort (recall $[\omega/m] \rightarrow 0$). Under true uncertainty we are conversely not able to classify a performance according to probability distributions, for we are uncertain not only about which action will be exercised, but also about which actions are even possible. To continue with our effort example, one does not just not know about the relationships among the actions $\{a_i\} \in A, i = 1, \dots, n$, but one does not even know about the set A .

Assume, more generally, that the agent has at disposal the just-mentioned A as his set of actions. Additionally assume that the principal has imperfect information over A , that is, A is the improper superset of the information set $P = \{p_1, p_2, \dots, p_j, \dots\}$ of the principal ($A \supseteq P$). Typically, we have problems where $A = P$, or, when agent and principal share some information by assuming P to be a partition of A , we have problems that can still be solved by increasing the cardinality of P (viz., increasing the elements of P) by, say, observing a vast number of actions $a \in A$. (In our case, this

latter point clearly implies that if the two sets achieve equal cardinality, $|A| = |P|$, then the sets also have equal information structures $A = P$.)

But if, for instance, $A \supset P$ (partial knowledge) or, more exceptionally, $A \cap P = \emptyset$ (complete ignorance), then observation of action does not automatically lead to an increase in the elements of the repertoire of the principal: there's a knowledge gap not easily overcome by just monitoring. The principal's P is not, at worse, a partition of A ; nor is it, at best, isomorphic to A . When sets differ in their structural properties, we face issues of *knowledge* asymmetry or true uncertainty.

If we have knowledge imperfections, production possibility sets of agent and principal vary. We pass from parametric differences in production possibility sets to structural differences in production possibility sets: the understanding of production possibility sets of principal and agent do not coincide. Observation of production possibility does not imply understanding of production possibility (Minkler 1993).

If observation of production possibility always implied understanding of production possibility, it would mean, we saw, that A and P would coincide. And if this is indeed the case, we fail to perceive the advantage of internal organization over market contracts. Why would we need the aid of other's knowledge – specially through internal organization – to act or to help us pursue our ends? One of the greatest difficulties in matters organizational, as we also tried to underline in the section on local public finance, resides in finding, judging and making use of the knowledge of others. As Milmgroon and Roberts (1986, p. 30) write in a germane context, a “decisionmaker may not know the alternatives that are available, and may be forced to rely on interested parties for suggestions.”

If true uncertainty coincides with risk there would not be, in other words, genuine transaction-cost or incentive-alignment marginal benefits from integration that would not also be present without integration. If the governance structures – the institutions – to maximize collective quasi-rents become a matter of organizational indifference considering the virtual absence of cognitive problems, then there's no *rational* reason to bear the additional costs of vertical integration, of devising complex, specific contracts. Performing comparative-institutional analysis is irrelevant when endowments that allow for the internalization of externalities are – and are known to be – equal.

Langlois encapsulates the point well in one of the earliest, and still one of the best, constructive assessments of the better-known modern organizational paradigm. “If the only imperfections in knowledge at stake were ... parametric ..., then decentralized contracting would always be a cheap organizational alternative. This sort of imperfect information is precisely what state-contingent contracting, including the form practiced on organized futures markets, is all about. If all participants to a transaction really are aware of and certain about all the facts of the situation, and are in complete and detailed accord as to all possible contingencies, then decentralized market-contract arrangements should not be at a significant transaction-cost disadvantage” (Langlois 1984, p. 30). Similarly, Teece and Pisano (1994, p. 540) more recently write that “the properties of internal organization cannot be replicated by a portfolio of business units amalgamated through formal contracts, as the distinctive elements of internal organization simply cannot be replicated in the market.” An equivalent way to put it all is to say that under risk internal organization has no added value over standard market contracting; and that it actually maybe a cost.

The difficulty in standard market organization – the primary benefit of vertical integration, if you wish – manifests when observation does not imply understanding; when knowledge involved in transacting is incomplete and idiosyncratic. This is likely to be the case when there's knowledge asymmetry. The organization of knowledge loses its indifference when, put at its simplest, one individual is more knowledgeable than another. To continue with the mathematical imagery, problems arise in case of $A \setminus P$ or $P \setminus A$; or, to summarize it more generally, when $2^A \supset P$ or $2^P \supset A$.

How can one “efficiently” monitor what one does not understand? How can one *ex ante* easily select the “efficient” transaction-cost or production-cost minimizing institution under true uncertainty? How can one “efficiently” control the production of something that one ignores? How can one “efficiently” coordinate the productive knowledge of others that one does not at least to some degree share? How can one “efficiently” produce if one does not fully understand the process of production? How can a principal easily understand a possible production innovation of an agent by simple observation? Problems of this sort pose, to be sure, difficulties for the *ex ante* selection of the “efficient” transaction-cost or production-cost minimizing institution; and show, moreover, how knowledge alignment is at least as important as incentive alignment.

But if one concedes that the “very essence of capabilities/competencies is that they cannot be readily assembled through markets” (Teece and Pisano 1994, p. 540), a new question immediately poses itself: what are we to make of incomplete contracts? The answer may be given starkly: an incomplete contract may be interpreted not just as an instrument that exists to solve opportunism, incentive conflicts and property right distribution in order to necessarily maximize joint rents, but also as a useful instrument

that affords organizational versatility writ large. That is to say that contracts may be principally interpreted as instruments for adaptation to change; for coordination of knowledge; for alignment of expectations.

Contractual incompleteness does not just regard the coordination of parametric changes such as price and quantity, but also that of structural changes, such as technological innovation and trial and error learning. It allows for experimentation and for wider adjustment to contingency. It implicitly creates future options. Contracts are a means to (efficiently?) pursue expectational equilibrium or plan coordination. In Coase (1937), longer “incomplete contracts,” Langlois and Foss explain,

provide much more flexibility because they eliminate haggling and communication costs and allow those who possess superior knowledge to direct less-informed others. ... Thus one may argue that Coase’s explanation for the emergence of the firm is ultimately a *coordination* one: the firm is an institution that lowers the costs of qualitative coordination [that is, beyond price and quantity] in a world of uncertainty, quite irrespectively of incentive conflicts. Largely in a quest to make Coase’s ideas more ‘operational,’ the literature has arguably both narrowed his explanation for the firm and moved its focus away from issues of coordination, especially qualitative coordination. Both the issue of capabilities and the issue of coordination of production have been overshadowed by a dominant interest in issues of incentive compatibility (Langlois and Foss 1999, p. 204, original emphasis).

Or, to look at it differently, contracts allow for the adjustment to “coordination failures” (cf. Leijonhufvud 1981, p. 140). Incompleteness of contracts is a virtue of organization.

The fact that the coordination perspective is not at all at odds with Coase (1937), and that perhaps this perspective reflects Coase’s thought more than alternative ones, is significant. Relatedly, and maybe more interesting, this perspective also accords well with Williamson’s earlier work that focused on “information

impactedness” (e.g. 1975, pp. 31-7;); and with Malmgren (1961), the first extension of Coase (cf. Langlois and Foss 1999).

The more interesting problems of organization arise, to reiterate it à la Hayek, when knowledge is dispersed. This is *a fortiori* so, we implied, when the *quality* of the dispersed knowledge is asymmetrical, i.e., when the distribution of its dispersion is not given (Jensen and Meckling 1992). By giving greater import to the “specificity” or “sunkness” (Baumol 1986) of productive knowledge, we wish to highlight how different institutions differ above all – but not exclusively – in their knowledge coordinative abilities. More precisely, institutions, whether public or private, not only differ in their ability to internalize externalities such as hold-up and evaluation of marginal input in team production; but also differ in their ability to create externalities in the form of productive contexts not otherwise achievable by decentralized contracting (compare e.g. Ghoshal et al. 1995).

Illustration: Supranational Federalism and the EU

At a time when most nation-states, perhaps having the complementary Hayek and Tiebout frameworks in mind, are demanding greater devolution – with Italy maybe being the most discussed and more interesting case among the developed countries – there is also an increasing tendency towards supranational federalism, with the European Union being the clearest example. Let us then consider supranational federalism, employing the EU as a concrete illustration.

The *raison d'être* of a federation of independent sovereign states is to avoid war. The instrument through which peace should be secured is economic: free trade. This view of the benefits of free trade is actually a classical one. Scholars such as

Montesquieu, Sir James Stuart, Adam Smith, Thomas Paine, and Condorcet were indeed all united in seeing commerce as “civilizing” (cf. Hirschman 1982, pp. 1464-66).

Be that as it may, an interstate federation, we hinted, is necessarily a matter of planning or conscious design. It is a mechanism design problem. And although its delineation may be the result of a rational bargaining process among politicians (Riker 1964), its practical implementation and sustainment is not an easy matter. Federalism is not a free lunch. “Planning, or central direction of economic activity, presupposes the existence of common ideals and common values; and the degree to which planning can be carried is limited to the extent to which agreement on such a common scale of values can be obtained or enforced. ... It is clear that such agreement will be limited in inverse proportion to the homogeneity and the similarity in outlook and tradition possessed by the inhabitants of an area” (Hayek 1948, Ch. 12, p. 264).

Here, like in all political processes, the difficulty of institutional design rests above all in finding the “correct” balance between private wants and public wealth – that is, the difficulty concerns the creation of institutions that allow for peaceful changes in the combinatorics of allocation of resources and of power diffusion. One solution has been to attempt to slowly create “common ideals and values” through increasing international, especially economic, cooperation.

In this regard, the EU is the most ambitious and most successful supranational organization to date. The practical implementation of the EU is based on the so-called neofunctionalist approach to international organization – where cooperation revolves around the organization of political competence (if there is such a thing) rather than technical competence – whose ultimate objective is total economic integration through

supranational government. Increasing integration is achieved through the integration of different sectors. This approach where the integration of one sector is seen as a stepping-stone for the integration of others is more widely known in the specific case of the EU as *l'engrainage* policy.

Table 1 illustrates some ideal-typical steps that supranational cooperation could follow. It is clear that the process should be gradual and not big-bang in nature. The EU is at stage 4, quickly moving to 5.

Table 1: Levels of Economic Cooperation Among States

	No Tariffs or Quotas Internally	Common External Tariff	Free Flow of Factors	Harmonization of Economic Policies	Unification of Policies and Institutions
(1) Free Trade Area	X				
(2) Customs Union	X	X			
(3) Common Market	X	X	X		
(4) Economic Union	X	X	X	X	
(5) Total Economic Integration	X	X	X	X	X

Source: Nye (1971, pp. 28-9), after Balassa (1961, *passim*).

The EU is planning to include up to 25 countries by 2004. This enlargement plan is accompanied by strong intentions to build a European Constitution believed to improve the quality of, as well as raise the legitimacy of, European institutions. Already, with the creation of the European Commission, the Foreign Politics and Common Security and a delegated minister for European Affairs, the EU is increasingly moving toward a federal structure. In a recent interview reported in the French magazine *L'express international* for example, Pierre Moscovici, the delegated minister to the European Foreign Affairs, presses on the importance of a centralized government for the Union. Therefore, the EU has increasingly shifted from its initial purpose of assuring peace (after the second world war) to creating a number of countries governed and directed by a common government.

We shall now present three examples where the decisions of the European Commission have seen forceful opposition from local governments. Or, to put it in the lingo of the previous discussion, we present three examples of supranational federal “failures” due to different production possibility sets of countries: the Common Agricultural Policy (CAP), what we may call the fish stock policy, and the Growth and Stability Pact.

Since its inception, the CAP has always been a very criticized policy. Among other things, the CAP regulates the subsidies to European farms. While only approximately 4 percent of Europeans are employed in agriculture, subsidies to farmers are the biggest single item in the EU’s budget (if indirect taxes are added, then the total subsidies can reach 104 billion euros in 2001 compared to 50 billion in the USA). The subsidy mostly benefits large farms which are lined in the category of industrial farming. The highly-subsidized prices of agricultural goods costs the “average” European family about 600 euros per year (*Economist*, 13 July, 2002).

Pressures from a variety of fronts, but most notably from the World Trade Organization, have pushed the European Commission recently adopted some reforms. These reforms present a twist, as it were, to the actual policy, but there is no plan to reduce the amount of subsidies. In particular, the proposals consist in redirecting even more CAP spending toward environmental and rural development programs; and in ensuring that people can keep land in productive use as well as in ensuring that people keep living in the country-side.

These reforms were welcomed in Germany, Britain, the Netherlands and Sweden. These countries contribute to the CAP budget, but get very little out of it. However, not all of Europe has welcomed these reforms. The opposition comes

particularly from the French government, the biggest beneficiary from the EU's subsidies, particularly intimidated by the strong farmers cooperatives.

The European Commission is concerned about the depletion of fish stock in its waters. As a result, it is leaning toward reducing the tonnage of the EU's fishing fleet by 18 percent and with reducing between 30 to 60 percent its "fishing effort," namely, the amount of time that boats can stay in its sea for fishing purposes. In addition, the Commission is planning to cut the subsidies for modernizing fishing fleets.

Spain and Portugal, the two EU countries that rely the most on fishing, opposed these reforms claiming that they would severely damage their fishing industries. In addition, these two countries feel that they have been unfairly treated concerning the waters of the North Sea. Upon their adhesion to the EU in the early 80's, in fact, Spain and Portugal were promised access to the waters of the North Sea by no later than 2002. With these new reforms, the Commission claims that it is unlikely that Spain and Portugal will be allocated quotas allowing them to fish in these waters (the Spaniards in particular for historical reasons too) (*Economist*, 1 June, 2002). The Spanish government has tried to block the reforms, and the discussion between Spain and the European Commission may end up in court. In addition to Spain and Portugal, the reform is very likely to be rejected by most EU countries, especially France.

The Growth and Stability Pact... like an incomplete contract for coordination, incentive alignment is secondary to coordination of parameters... it is a structural issue not a parametric one ...

Far from downplaying the importance played by political agenda-setting and international log-rolling pressures in the adduced examples, we believe that the examples eloquently illustrate the importance of knowledge asymmetry for matters of

public governance coordination. But then again, one should not underestimate the possibility that political agendas and pressures, at least from a positive viewpoint, emerge exactly because of problems of asymmetry of knowledge. ...

...

The externalities produced within the organization of the EU are not all of a productive type...

...

But is gradualism a sufficient condition? In other words, can one achieve supranational federalism – the coordination of different competencies, technical or political – *ex nihilo*, by simply being gradualistic in integration policy?

Most second-generation economic federalism writers, implicitly or explicitly, would probably answer in the affirmative.

...

... This means that [a] federation will have to possess the negative power of preventing individual states from interfering with economic activity in certain ways, although it may not have the positive power of acting in their stead (Hayek 1948, Ch. 12, pp. 264-5; p. 267).

...

But in policy terms this does not at all imply that once a country has joined a supranational union it should exit for it is not in its best interest (da Empoli 2000). ...

...

Political processes are different from economic ones but ... And nonetheless it is a welfare issue...

Section to be concluded.

Conclusion and Prospective

The second-generation theory of federalism is a major advance. And yet, it is an advance that still wears, consciously or not, the straightjacket of the “elementary” or “normative” view of federalism (cf. Buchanan 1995). That is to say, it is a theory that still treats the role of institutions as exogenous. By ultimately treating knowledge and its distribution as essentially one and the same, it forces one to consider all deviations from such coincidence as welfare pathologies. Substantively resting, as it does, only on information asymmetries leading to partial equilibrium problems, it calls for Pigovian intervention in the hope to achieve Pareto optimality.

But the value of knowledge, we suggested, is not a matter of indifference. Dispersed knowledge is not a homogenous good. And it is precisely the nonhomogenous character of knowledge, we pointed out, that is the ultimate ingredient for the growth of knowledge. Information asymmetry, to put it crudely, does not justify internal organization or institutions. This implies that federal organization is more complex than most received theory has it, calling for subtlety in its application.

Like other works, ours is incomplete. Yet it provides broad foundations for further work in the area, especially for modeling and empirical testing. The models of Langlois (1986) and Minkler (1993) in this sense represent some first solid ground to build upon. These other tasks represent a substantial part of our future research efforts.

References

- Alchian, Armen A. 1950. "Uncertainty, Evolution and Economic Theory," *Journal of Political Economy* 58(3): 211-21(June).
- Alchian, Armen A. and Harold Demsetz 1972. "Production, Information Costs and Economic Organization," *American Economic Review* 62(5): 777-95(December).
- Alchian, Armen A. and Susan Woodward 1988. "The Firm is Dead; Long Live the Firm: A Review of Oliver E. Williamson's *The Economic Institutions of Capitalism*," *Journal of Economic Literature* 26(1): 65-79(March).
- Alesina, Alberto and Roberto Perotti 1998. "Economic Risk and Political Risk in Fiscal Unions," *Economic Journal* 108(449): 989-1008(July).
- Balassa, Bela 1961. *The Theory of Economic Integration*. Homewood, Ill.: Irwin.
- Baumol, William J. 1986. "Williamson's *The Economic Institutions of Capitalism*," *Rand Journal of Economics* 17(2): 279-86(Summer).
- Buchanan, James M. 1949. "The Pure Theory of Government Finance: A Suggested Approach," *Journal of Political Economy* 57(): 496-505(December).
- Buchanan, James M. 1995. "Federalism as an Ideal Political Order and an Objective for Constitutional Reform," *Publius* 25(2): 19-27(Spring).
- Coase, Ronald H. 1937. "The Nature of the Firm," *Economica*, N.S., 4(16): 386-405(November).
- Coase, Ronald H. 1960. "The Problem of Social Cost," *Journal of Law and Economics* 3(): 1-44(October).
- Crémer, Jacques and Thomas Palfrey 1999. "Political Confederation," *American Political Science Review* 93(1): 69-82(March).
- Crémer, Jacques, Antonio Estache, and Paul Seabright 1996. "Decentralizing Public Services: What can we Learn from the Theory of the Firm?," *Revue d'économie politique* 106(1):37-60(January-February).
- da Empoli, Domenico 2000. "Public-choice Analysis of a New International Organization: The International Sea-bed Authority," *Constitutional Political Economy* 11(1): 59-67(March).
- Dahlman, Carl J. 1979. "The Problem of Externality," *Journal of Law and Economics* 22(): 141-62().
- Demsetz, Harold "Book Review of Oliver Hart, *Firms, Contracts, and Financial Structure*," *Journal of Political Economy* 106(2): 446-52(April).
- Dosi, Giovanni and Luigi Marengo 1994. "Some Elements of an Evolutionary Theory of Organizational Competencies," in R. W. England (ed.), *Evolutionary Concepts in Contemporary Economics*. Ann Arbor, MI: University of Michigan Press: 157-78.
- Frey, Bruno S. 1984. "The Public Choice View of International Political Economy," *International Organization* 38(1): 199-223(Winter).

- Ghoshal, S., Moran, P. and Almeida-Costa, L. 1995. 'The essence of the megacorporation: shared context, not structural hierarchy', *Journal of Institutional and Theoretical Economics* 151(4): 748-59().
- Hart, Oliver 1995. *Firms, Contracts, and Financial Structure*. Oxford: Clarendon Press.
- Hart, Oliver, Andrei Shleifer, and Robert W. Vishny 1997. "The Proper Scope of Government: Theory and an Application to Prisons," *Quarterly Journal of Economics* 112(4): 1127-61(November).
- Hayek, Friedrich A. von 1948. *Individualism and Economic Order*. Chicago: Chicago University Press.
- Hayek, Friedrich A. von 1978. "Competition as a Discovery Procedure," in *Idem* (ed.), *New Studies in Philosophy, Politics, Economy and the History of Ideas*. London: Routledge & Kegan: 179-190.
- Hirschman, Albert O., 1982, "Rival Interpretation of Market Society: Civilizing, Destructive, or Feeble?," *Journal of Economic Literature* 20(4): 1463-84(December).
- Holmström, Bengt 1979. "Moral Hazard and Observability," *Bell Journal of Economics* 10(1): 74-91(Spring).
- Iaryczower, Matias, Sebastian Saiegh and Mariano Tommasi 2001. "Coming Together: The Industrial Organization of Federalism," *Mimeo*.
- Jensen, Michael C., and William H. Meckling 1976. "Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure," *Journal of Financial Economics* 3(): 305-360().
- Jensen, Michael C. and William H. Meckling 1992. "Specific and General Knowledge and Organizational Structure," in W. Lars and H. Wijkander (eds.), *Contract Economics*. Oxford: Basil Blackwell: 251-274.
- Klein, Benjamin, Robert G. Crawford, and Armen Alchian 1978. "Vertical Integration, Appropriable Rents, and the Competitive Contracting Process," *Journal of Law and Economics* 21(2): 297-326().
- Langlois, Richard N. 1984. "Internal Organization in a Dynamic Context: Some Theoretical Considerations," in M. Jussawalla and H. Ebenfield, (eds.), *Communication and Information Economics: New Perspectives*. Amsterdam: North-Holland: 23-49.
- Langlois, Richard N. 1986. "Coherence and Flexibility: Social Institutions in a World of Radical Uncertainty," in I. Kirzner (ed.), *Subjectivism, Intelligibility, and Economic Understanding: Essays in Honor of the Eightieth Birthday of Ludwig Lachmann*. New York: New York University Press: 171-91.
- Langlois, Richard N. and Paul Robertson 1995. *Firms, Markets, and Economic Change: A Dynamic Theory of Business Institutions*. London: Routledge.

- Langlois, Richard N. and Nicolai J. Foss 1999. "Capabilities and Governance: The Rebirth of Production in the Theory of Economic Organization," *Kyklos* 52(2): 210-18.
- Leijonhufvud, Axel 1981. *Information and Coordination: Essays in Macroeconomic Theory*. New York and Oxford: Oxford University Press.
- Macdonald, Glenn M. 1984. "New Directions in the Economic Theory of Agency," *Canadian Journal of Economics* 17(3): 415-40(August).
- Malmgren, Harold B. 1961. "Information, Expectations and the Theory of the Firm," *Quarterly Journal of Economics* 75(3): 399-421(August).
- Martin, Stephen 1993. *Advanced Industrial Economics*. Cambridge, Mass.: Blackwell.
- Milgrom, Paul and John Roberts 1986. "Relying on the Information of Interested Parties," *Rand Journal of Economics* 17(1): 18-32(Spring).
- Minkler, Alanson P. 1993. "Knowledge and Internal Organization," *Journal of Economic Behavior and Organization* 21(1): 17-30(May).
- Montinola, Gabriella, Yingyi Qian and Barry R. Weingast 1996. "Federalism, Chinese Style: The Political Basis for Economic Success," *World Politics* 48(1): 50-81(October).
- Nelson, Richard R. and Sidney G. Winter 1982. *An Evolutionary Theory of Economic Change*. Cambridge, Mass.: The Belknap Press of Harvard University Press.
- Nye, Robert S. Jr. 1971. *Peace in Parts: Integration and Conflict in Regional Organization*. Boston: Little Brown.
- Oates, Wallace. 1999. "An Essay on Fiscal Federalism" *Journal of Economic Literature* 37(3):1120- 1149(September).
- Olson, Mancur 1965. *The Logic of Collective Action*. Cambridge, Mass.: Harvard University Press.
- Penrose, Edith T. 1959. *The Theory of Growth of the Firm*. Oxford: Basil Blackwell.
- Persson, Torsten and Guido Tabellini 1996a. "Federal Fiscal Constitutions: Risk Sharing and Moral Hazard," *Econometrica* 64(3): 979-1009(May).
- Persson, Torsten and Guido Tabellini 1996b. "Federal Fiscal Constitutions: Risk Sharing and Redistribution," *Journal of Political Economy* 104(5): 979-1009(October).
- Prescott, Edward S. 1999. "A Primer on Moral-hazard Models," *Federal Reserve Bank of Richmond Quarterly Review* 85(1): 47-77(Winter).
- Qian, Yingyi and Barry R. Weingast. 1997. "Federalism as a Commitment to Preserving Market Incentives" *Journal of Economic Perspectives* 11(4): 83-92(Autumn).
- Richardson, George B. 1972. "The Organisation of Industry," *Economic Journal* 82 (327): 883-896(September).

- Riker, William H. 1964. *Federalism: Origins, Operation, and Significance*. Boston: Little Brown.
- Rodden, Jonathan and Susan Rose-Ackerman. 1997. "Does Federalism Preserve Markets?," *Virginia Law Review* 83(7): 1521-72(October).
- Saiegh, Sabastian and Mariano Tommasi 2000. "An 'Incomplete-Contracts' Approach to Intergovernmental Transfer Systems in Latin America," in Burki, S. J. and G. E. Perry (eds.), *Decentralization and Accountability of the Public Sector*. Washington, D.C.: World Bank: 127-44.
- Teece, David J. and Gary P. Pisano 1994. "Dynamic Capabilities of Firms: An Introduction," *Industrial and Corporate Change* 3(3): 537-56.
- Tiebout, Charles M. 1956. "A Pure Theory of Local Expenditures" *Journal of Political Economy* 64(5): 416-24(October).
- Tirole, Jean 1994. "The Internal Organization of Government," *Oxford Economic Papers* 46(1): 1-29(January).
- Vanberg, Viktor and James M. Buchanan 1986. "Organization Theory and Fiscal Economics: Society, State, and Public Debt," *Journal of Law, Economics, and Organization* 2(2): 215-27(Fall).
- Volckart, Oliver 2001. "No Utopia: Government without Territorial Monopoly in Medieval Central Europe," *Journal of Institutional and Theoretical Economics* 158(): 325-43().
- Weingast, Barry R. 1995. "The Economic Role of Political Institutions: Market-Preserving Federalism and Economic Growth," *Journal of Law, Economics, and Organization* 11(1): 1-31().
- Williamson, Oliver E. 1975. *Market and Hierarchies: Analysis and Antitrust Implications*. New York: The Free Press.
- Williamson, Oliver E. 1985. *The Economic Institutions of Capitalism*. New York: The Free Press.
- Williamson, Oliver E. 1988. "Corporate Finance and Corporate Governance," *Journal of Finance* 43(3):567-91(July).
- Williamson, Oliver E. 1999. "Public and Private Bureaucracies: A Transaction Cost Economics Perspective," *Journal of Law, Economics, and Organization* 15(1): 306-42().

