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Idiosyncratic Production Regimes: Co-evolution of Economic and Legal Institutions in the Varieties of Capitalism¹

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I. Anomalies

Why has the American tort revolution which led to such a drastic rise of liability that it catalysed an insurance crisis in the United States not occurred in Europe? Why has judicial control over standard contracts not been exercised in the USA as intensively as it has been in Germany? Why do European "general clauses" on consumer protection which are customarily used with little difficulty in France, Italy, Germany, run dry in Great Britain? Why is the legal implementation of Just-in-time distribution networks, a Japanese export, different on the continent than it is in the USA and in Great Britain?²

Such findings irritate both political attempts at European harmonisation as well as the academic discipline of comparative law. They upset their basic tenets - the convergence of economic institutions in advanced societies and the functional equivalence of legal constructs.³ They give rise to the question whether European harmonisation produces new divergences instead of legal unity and institutional security.⁴

Such findings also irritate institutional theories in economics. Most of them predict that at the end of an evolutionary process, economic institutions which are the most efficient will tend to prevail. They identify quite different mechanisms for selection. Transaction costs theory provides that rational actors select a legal arrangement for their transactions which minimises costs, such as information, negotiation and implementation costs.⁵ Evolutionary economics mistrusts rationality of actors identifying instead a mechanism for selection in markets which allows only the economically efficient to survive operating in accordance with a routine which has been devised with bounded rationality.⁶ Law and economics makes the continuous pressure of "re-litigation" responsible for the selection of efficient rules.⁷ Regulatory competition identifies the federal and global co-existence of legal systems as a competitive mechanism which selects the most efficient regimes.⁸

Theories of institutions are irritated because those anomalies put into question the direction of evolution toward efficiency. Recent empirical results of comparative

¹ I would like to thank Peer Zumbansen for his constructive and critical contribution to this article.

² For the empirical background of these questions, see Casper, 1998; 1996; 1995; Collins, 1998; Teubner, 1998.

³ Zweigert & Kötz, 1992: 33ff; Bogdan, 1994: 60; for a critique, see Legrand, 1997; Frankenberg, 1985.

⁴ On this debate, Teubner, 1998.

⁵ Williamson, 1993; 1991; 1985.

⁶ Nelson, 1995; Winter, 1995; Nelson & Winter, 1982.

⁷ Cooter & Kornhauser, 1980; Priest, 1977; Rubin, 1977.

⁸ Bratton & McCahery, 1995.

political economics have come as a surprise. Contrary to all expectations, the globalisation of markets and the computerisation of the economy have not led to a world-wide convergence of economic institutions. Despite all undeniable tendencies to minimise transaction costs, selective mechanisms of the market, processes of re-litigation and regulatory competition, institutional differences have not been wiped out.⁹ On the contrary, globalisation and indeed European harmonisation have produced new institutional divergences. One of the most remarkable developments of the last thirty years is that divergences between economic institutions – corporate finance, corporate governance, industrial relations, education and training, inter-company relations, contracting networks, standard setting and dispute resolution - have increased in advanced societies and not decreased, despite the liberalisation of the world markets and the establishment of a common market in Europe.¹⁰

How is one to treat such idiosyncrasies of institutions in an adequate manner? Two ambitious theories attempt to systematically explain the institutional varieties of capitalism. The theory of production regimes (Peter Hall, David Soskice) observes interlocking systems of economic institutions whose elements are self-stabilising.¹¹ The theory of institutional co-selection (Richard Nelson, Sidney Winter) explains the deviation from the efficiency path by the cumulation of selectors: institutional evolution is not only driven by market efficiency but also dictated by political, technological and cultural selection criteria.¹²

What response does a theory of self-organising social systems provide? Despite its sympathies to internal dynamics and multiple evolution, it distances itself from both theories. In short, its critique of the theories of production regimes and co-selection is:

1. A production regime is not a system.
2. Co-evolution cannot be understood as a mere addition of selectors.

If there is no system and no co-selection at work, what then makes institutions differ?

II. Evolution and social self-organisation

By introducing the ideas self-organisation and self-reproduction, the theory of autopoietic social systems tries to give new answers to old problems of legal evolution in the Darwinian tradition: What are the self-preserving units in law's evolution? Texts, rules, institutions, juridical memes, or *l'esprit des lois*? Social groups, populations, nations, or selfish genes? How to identify in law sources of selective variation: are they external or internal to the law? What are the criteria according to which legal rules are selected: adaptability to law's environment, survival of the fittest rule, mere viability?

⁹ Crouch & Streeck, 1995; Albert, 1993; Porter, 1990.

¹⁰ Soskice, 1997.

¹¹ Hall & Soskice, 1999; Soskice, 1997, 1996.

¹² Nelson, 1995; Nelson & Winter, 1982.

Like other post-Darwinian theories, systems theory criticises the dominant evolution-toward-efficiency paradigm which is obviously close to classical Darwinian ideas of natural selection. The four main assumptions of the dominant paradigm are:

1. Change of legal institutions takes place within one unitary process of bio-social evolution.
2. Evolving unit is the social group which gains an evolutionary advantage by adopting successful legal institutions.
3. The selection mechanism is external to the law as a quasi-natural selection through competitive market pressures.
4. Selection criterion and overall result of legal evolution is economic efficiency.

The first blow to the dominant paradigm came from path dependency.¹³ Evolutionary mechanisms do not work in a historical vacuum but apply recursively to specific historical situations resulting in multiple evolutionary paths of legal institutions. Today's "varieties of capitalism" have created in different regions on the globe a bewildering multitude of various legal institutions. In the best case they are different but equivalent in their efficiency, in the normal case they show inefficiencies which they do not remedy because it would be too costly. And in the worst case they are "locked in" in a situation of inefficiency which they as a result of path dependency (lack of information, political factors) they will not change.

Further blows came from chaos theory that stressed the importance of the initial, often accidental conditions. Indeed, it could be shown that legal institutions tend to be extremely sensitive to these initial conditions and that twist and turns lead to results far from those originally expected. Furthermore, the idea of punctuated equilibrium made it plausible how legal institutions are propelled to the top of a local evolutionary mountain but absent cataclysmic change will remain stuck there and be unaware of the higher summit across the valley.¹⁴

Path dependency, chaos theory and punctuated equilibrium attacked successfully the efficiency criterion in legal evolution, but they left the other three fundamental assumptions intact. The big blow to the whole edifice came from theories of self-organisation that were developed in social and legal theory in close contact with the theory discussion in biology.¹⁵ The ideas of self-organisation, autopoiesis, recursiveness, operational closure, and structural coupling have been incorporated into a theory of legal evolution that totally reversed the assumptions of the law and economics model.¹⁶ Ironically, the same ideas of self-organisation which at least partially originated in biological theory, when applied to law as a hermeneutic

¹³ For a discussion in a corporate law perspective, Roe, 1995.

¹⁴ Again with a view to corporate law, Roe, 1995.

¹⁵ On the impact of self-organisation on evolution: Luhmann, 1997: 431ff.; 1995: Ch. 9VIII: 1992b; 1982c; 1982a; Leydesdorff, 1994; Roth & Schwegler, 1990; Maturana & Varela, 1988; Atlan, 1987; Varela, 1984; Glasersfeld & Cobb, 1983; Jantsch, 1979.

¹⁶ On legal evolution in this perspective Willke, 1992; Ladeur, 1987; Teubner, 1987; 1993:

47ff.;Luhmann, 1985: Ch.3.

process, were compelled to move further and further away from a biological understanding of social evolution. Law appears now as the result of autonomous social evolution, of the inner dynamics of hermeneutic processes. The results of such a reformulation of classical assumptions shall be summarised in the following eight points before aspects of co-evolution in production regimes are scrutinised more in depth.

1. Evolving unit is neither a text nor is it a group but a self-organising social system. A social system is a rather esoteric species – nothing tangible, no flesh no blood, invisible like an angel, but at the same time not fictitious, not transcendent, instead the immanent hard core reality of a chain of operations, transformations of differences that drive toward self-continuation.¹⁷ This excludes from the outset sociobiology which reduces social phenomena (behaviour, rules, laws) to their function of maintaining biological units, whether individuals, species, groups, or, genes. Legal institutions do not appear as properties of a biological unit which are selected by its survival imperatives, instead as the result of an autonomous evolutionary process within self-organising social systems. Social systems should not be identified with groups of individual actors nor with a social collective, rather they are constituted by elementary operations of meaning. Meaning (*Sinn*) is understood here as a specific mode of processing information. To make a long story short, systems of meaning are characterised by four properties (1) recursive operations, (2) a special relation of actualisation/potentialisation, (3) contextualisation by specific reference structures, (4) closure, self-reference and circularity.¹⁸ Due to fundamental differences between the evolution of life and the evolution of meaning the idea of a unitary bio-social evolution needs to be abandoned and to be replaced by a more complex concept of co-evolution of life and meaning. Autonomous social systems evolve independently from the evolution of living systems, but they are selectively interrelated via co-evolutionary processes.

2. The law evolves not via psychic cognitions of individual minds. Law is a phenomenon of social meaning based on communicative operations which are distinct from psychic operations of the human mind but occur parallel to them.¹⁹ It is exclusively communicative operations that form the basic elements of self-organising social systems. Here we find the self-preserving process that drives legal institutions. This is the reason why the evolving unit in social evolution cannot be the group or the population consisting of human individuals – not to speak of the selfish gene - that needs to be preserved. But also the selfish meme – promising as it might look as a building block for the law – cannot represent the evolutionary unit, because it is designed as a psychic phenomenon combined with a rather reductive social dimension - imitation (*sic!*) - which never will have the necessary copying fidelity.²⁰ Law's evolutionary dynamic does not take place in a stream of psychic cognitions, but instead, in a stream of communications, i.e. a dynamic information process creating its own stable eigenvalues independently of what individual lawyers might think about it. Driven by the imperative of self-continuation, legal communications (judicial decisions, legislative acts, contracts) which are recursively applied to prior

¹⁷ For a systematic analysis of autopoietic social systems in general, Luhmann 1995; on the legal system, Luhmann, 1992a; 1992b.

¹⁸ Luhmann, 1995: Chap. 2.

¹⁹ For this important distinction as basis for a theory of social systems, Luhmann, 1995: Ch.6 and 7.

²⁰ For this concept see Blackmore, 1999; Dennett, 1995; Dawkins, 1976.

legal communications transform the hermeneutics of law (rules, principles, doctrines, institutions).

3. The structures that evolve in law and society are not behaviour in the sense of statistical regularities. Nor are they expectations of action, whether of a cognitive or a normative nature. Rather it is law as "textuality" that constitutes the changing structures.²¹ It is the problematic space between written texts and their interpretation by legal actors, the circularity of legal hermeneutics, where the evolutionary dynamics of law takes place. Legal texts (political constitutions, legislative statutes, judicial precedents, private contracts and wills, organisational charters) constitute the "medium" into which various and controversial "forms" of interpretation are inscribed. Legal evolution, thus, is not a simple change of behaviour or of rules, rather an institutionalised process of legal controversies in the courts and legislative chambers and a conflictual relation between dominant opinions of legal authorities and deviant theories.

4. So far, one still would arrive at a "natural selection" concept of legal evolution. It would be understood as the willingness of an informationally open system to respond to the demands made upon it by the environment. Driven by society wide forces of selection, among them especially markets with their pressures toward efficiency, law's internal institutions would adapt to their external social environment. This is, to be sure, a widespread concept in legal sociology and legal economics. However, it does not take into account one crucial development that has taken place in modern societies – the radical closure of the legal system. Modern legal institutions have de-coupled themselves from society-wide evolution by developing evolutionary mechanisms – variation, selection, retention – of their own.²² The crucial transformation takes place when in court litigation, legislation and contracting legal argumentation begins to refer to past legal materials (precedents, rules, principles) in a very specific way. It is the exclusion of arguments *ad hoc* and *ad hominem* which makes the legal process independent from direct social influences, especially from clientelism, kinship, politics.²³ "The artificial reason of law" which Sir Coke invoked against the political interventions of the King makes it autonomous vis-a-vis moral arguments, economic considerations, political expediency and common sense

5. In autonomous law, variations occur in the constitution of "specific legal cases" (a court suit, a legislative proposal, a contractual offer) which have – as we all know from sad experiences - only very little to do with the underlying social conflict. Social conflicts are not only translated into legal language, they are reconstructed anew as claims of validity, as conflicts between technical legal rules which are in their legalistic artificiality rather meaningless for the social participants and their real conflict.

6. As against ideas of natural selection, in autonomous law the selection process is internalised. Rules are selected in highly specific evolutionary dynamics; they are not exposed to an efficiency driven market but to a complex interaction between clients, lawyers, judges, and legal scholars which makes the legal validity of a rule dependent upon whether the innovation fits with existing normative structures

²¹ Luhmann, 1993: 253ff.

²² For some details, Teubner, 1993: 55ff.

²³ Luhmann, 1993: 263.

and is compatible with the legal code. The law, like other autonomous social systems, has its own "hidden hand" which guides the evolution of rules in a different direction than a competitive market would.²⁴

7. Modern law has institutionalised its own re-stabilisation – legal doctrine – an elaborate structure of legal concepts and precedents, rules and principles in which selected variations are incorporated only if they pass the test of temporal and conceptual consistency.

8. Thus, the autonomy of legal evolution leads law to a developmental path of its own in which rules are selected not according to their efficiency but to their structural fit with vast and accumulating legal materials. To be sure, this does not rule out economic influences, but they are effectively mediated and substantially transformed via their selective reconstruction on the internal screens of law. The straightforward idea of law's evolution toward efficiency needs to be replaced – this is the main thesis of this article - by the more complex construct of a co-evolution of autonomous legal and economic institutions.

II. Hybrid Configurations

A closer look at production regime theory may show its strengths and weaknesses. Production regimes are the institutional environment of economic action. They organise the production of goods and services through markets and market-related institutions and determine the framework of incentives and constraints. Production regimes are the 'rules of the game' which govern economic action.²⁵ Their idiosyncrasies which equally irritate legal harmonisers and evolutionary economists are explained by the fact that single institutions are not isolated from each other but interact as interdependent elements of a stable system. Financial arrangements and corporate governance are strongly influenced by industrial relations, education and training, contracting networks, inter-company relations, standard setting and dispute resolution and vice versa. They constitute an interlocking system which tends to be self-perpetuating. Fed by strategies of rational collective actors, economic institutions interact with each other and produce specific stable configurations which in their turn enable institutional advantages to be formed in the international competition of production regimes.²⁶ "Varieties of Capitalism" are thereby explained by the intra-systemic dynamics of production regimes.²⁷

Regimes differ widely from economy to economy, even within the European context. As can be expected, the strongest divide exists between continental European production regimes (Austria, Benelux, Germany, Norway, Sweden, Switzerland) on the one hand and their Anglo-saxon counterparts (Great Britain, USA, Ireland, Canada, Australia, New Zealand) on the other. Each production regime reacts against external influences as an interlocking system. Thus, they develop a considerable stability in relation to efficiency-driven evolutionary pressures, a remarkable resilience towards changing demands of various markets, a continual resistance against institutional transfers, in short: a considerable historical continuity

²⁴ Ziman (1996) makes a similar case for the "hidden hand" in technology.

²⁵ Aoki, 1994; Hollingsworth, 1993.

²⁶ Porter, 1990.

²⁷ Hall, 1997.

in their independent development and all this during the age of levelling globalisation.²⁸

In effect, this theory gives an impressive account of the idiosyncrasies of production regimes. However, systems theory, which usually sees systems at work everywhere, would object that production regimes cannot be characterised as systems and their main idiosyncrasies cannot be attributed to internal dynamics. If one applies a strict definition and does not identify every social order with a system, then it becomes clear that the actual existing production regimes do not have elements, structures, boundaries of their own which would make them into autonomous social systems.²⁹ Rather, they constitute something completely non-systemic. Production regimes are structural links between autonomous social systems – between the economy, law and politics -- but do not themselves evolve into autonomous systems with their own elements, structures and boundaries. As forms of structural coupling,³⁰ production regimes are mere configurations of quite heterogeneous components, hybrids in the gap which exists between the economy and society. As a matter of empirical observation it can be shown that production regimes do not constitute elementary operations of their own - "regime acts" as it were - which could, comparable to economic transactions, legal acts and political decisions, interlock into self-reproductive social systems. As such, production regimes are neither functional systems nor formal organisations, nor interactions in the technical sense of systems theory but are merely linkage institutions between them.³¹

Production regimes are indeed a specific structural ensemble of economic institutions. This, however, does not make them a subsystem of the economy. Rather, as institutions they link the economy to other autonomous social systems. If one wants to understand their evolutionary dynamics then their character as linkage institutions bridging the economy, the law, politics and education, must be taken into account.

To be sure, the majority of economists and lawyers view this differently, and regard economic institutions as unitary phenomena, either as bundles of rules or as incentive systems, and reduce the difference between their legal and economic aspects to a matter of definition by diverse scientific disciplines. In a systems perspective, however, economic institutions appear as fundamentally different from legal institutions. Economic 'rules of the game' are not identical with legal rules. This does not only refer to the much cited distinction between Is and Ought. Economic property rights are factual opportunities to act on the market with relative distance from legal entitlements to ownership, which as ensembles of legally valid rules structure the resolution of conflicts and cannot be identified with mere opportunities to act. An economic transaction must be clearly distinguished from a legal contract even if both regularly though not necessarily occur at the same time. Legal personality as the benchmark for binding legal acts, subjective rights and duties is not identical with an economic enterprise as a self-reproducing social system. To give a shorthand definition of the difference: Economic institutions are constraints and incentives that influence cost benefit calculations of economic actors while legal institutions are

²⁸ Soskice, 1997.

²⁹ *Locus classicus*, Luhmann, 1995.

³⁰ Maturana & Varela, 1988: Ch. 5.

³¹ For these distinctions, see Luhmann, 1987, 1982b.

ensembles of legally valid rules that structure the resolution of conflicts. While being in a relation of tight structural coupling – which creates the wrong impression of their identity - economic and legal institutions are not only analytically but empirically distinct from each other.³²

But even the tightest structural coupling between the law and the economy does not create a new identity, that is to say a production regime as a social system, but rather binds both participating legal and economic institutions so closely together that they become almost indistinguishable. Paradoxically, the coupling occurs with the help of a distinction, namely, the distinction of the systemic codes which separate law from the economy. This does not establish a new unity of law and society or common socio-legal structures. While their events (may) occur simultaneously, they remain distinct parts of their specific discourse, with a different past and a different future. The only condition for their synchronisation is this: they need to be compatible with each other. They are and remain social hybrids which arise out of the coupling of legal and economic operations.

This structural coupling - and not their role as a social system - is the cause of their idiosyncrasies and their resistance against efficiency driven impulses. Their resistance to change should not - as the production regime theory provides – be traced to interdependencies of individual economic institutions effected by strategies of self-interested collective actors. Production regimes are not unified, self-perpetuating economic institution made up of economic transactions and strategies of actors. Their resistance to change has to do with their hybrid character. Their inertia is not determined primarily through internal interdependencies of individual institutions but through external dynamics, namely, through their connectedness to other social systems.

If the legal rules of hybrid institutions are changed through a legal act, the compatibility with its economic aspects can no longer be presupposed; it would have to be recreated in the new context which is a difficult and time consuming process which in turn alters both interlocking structures. This involves a double transformation, that is to say, a change on both sides of the distinction of the institution, not only a re-contextualisation of its legal side but also a re-contextualisation of the economic constraints and incentives. The contrary equally applies. Their efficient adaptation to changing markets are subverted by their legal structures which are subject to a different form of logic of change. Adaptation is not necessarily blocked but they move into other directions.

III. Ultracycles

Systems theory defines institutions like contract and property as bilateral structural coupling between economics and law.³³ However, production regimes are more complex than that. They are not merely regimes of contract and property, but also encompass *inter alia* institutions of education and training and technical standardisation. They establish not only bilateral but trilateral - if not multilateral – relations between social systems. Production regimes do not merely foster relations of the economy with the law but also foster relations with politics, with science and

³² See Teubner, 1992.

³³ Luhmann, 1997: 783ff.; 1993: 446ff

with education. Thus, production regimes are characterised by multipolarity and not by bipolarity, by cyclicity and not by reciprocity.

Cyclicity, however, does not mean that production regimes should now be defined as autopoietic social systems. If economic demands for change in industrial education are taken up by politics and new legal rules concerning examination and qualifications are implemented which give rise to innovation in education, which for their part have an effect on the economy, then this circulation of information does not take the form of operations which couple themselves as a continuation of self-reproduction but they remain political decisions, economic transactions, legal acts, educational interactions. They remain operations in the systems concerned.³⁴ The cyclicity works not via operations within one closed system but via perturbations between several autonomous systems.

Chinese Whispers - the child's game catches the logic involved. Autonomous systems do not understand each other but nevertheless connect with one another and produce something novel in this chain of misunderstanding. To this extent, the concept of the ultra-cycle as defined by Ernst von Weizsäcker is suitable to production regimes.³⁵ As opposed to a hyper-cycle which connects cyclical processes within a system,³⁶ an ultra-cycle extends beyond the boundaries of a system and connects cyclical processes of several systems. To be sure, in an ultra-cycle the participating systems do not merge into a new super-system with common elements. Their explicit characteristic is the added value which arises whenever the sparks of perturbation explode on the boundaries between participating systems. An ultra-cycle does not eliminate their autonomy establishing a recursion of operations. Instead it utilises their autonomy in a recursion of perturbations.

Consider technical standards. Scientific knowledge in the definition of technical standards can not be transformed directly into law but can only work as a legal irritant. It forces law to reconstruct the technical standard as a new legal rule. On the scientific side of the production regime, correlations between growth and risk have been produced. On the other side of the production regime, the law cannot map correlations into binding rules. It can only misunderstand them as though they defined at a particular point on a gliding scale behaviour as illegal. This threshold value of legal/illegal represents then the new legal standard which can be recontextualised in the network of legal distinctions. When the legal standard in its turn is incorporated in economic transactions, rational economic actors do not perceive it as a valid norm of conduct but as a cost factor which is dependent on the probability of discovery and the intensity of sanctions. But when the cost increases are perceived as too burdensome for the economy, lobby groups begin to irritate the political system pressing for a political reformulation of the standards. Under pressure, the politicians will irritate the technicians until they come up with a novel formulation of the original standards. The Chinese whisper of technical standards produces a cyclical dynamic of continuous change which only stabilises when the

³⁴ This does not exclude the possibility that new social systems evolve within production regimes. Systems of negotiation or circles of conversation may emerge as specific formal organisations or more informal interactions. These are indeed systems in the technical sense; they are not, however, identical with the production regime itself but are merely its components. See Willke, 1995: 109ff. and Hutter, 1989.

³⁵ Ballmer & Weizsäcker, 1974.

³⁶ Eigen & Schuster, 1979.

participating systems develop their own standard values in such a way that they are compatible with one another.

Not every coupling between economy and society however constitutes a production regime. A myriad of "wild" relations between systems exist in which the economy irritates other social systems and vice versa. A production regime in the technical sense emerges once the perturbation channels are formed in such a way so that the impulses for change are not only occasional, punctual and one-sided but merge either into a reciprocal perturbation, as in the bilateral case, or into a perturbation circulation, as in the multilateral case. Only then is a production regime established in its own right. It stabilises itself as an ultra-cycle of social institutions characterising the "economic culture" of a whole region.

Just as in the game of Chinese whispers, the differential structures of the circulation explain the different outcomes. One only needs to alter the direction of the circulation of the whispers. while keeping the other conditions constant, in particular the informational input, and one obtains different results. The mere difference of circulation and counter-circulation explains some empirical results which indicate the differences between technical standards within Europe. They can be traced back to the differences between technical standardisation in German, French and the new European regime. Particularly important is the point in time at which public authorities are talked to in the European whisper between technicians, managers, accountants and lawyers (Hancke & Casper, 1996).

IV Co-selection or Co-evolution?

If these are the synchronics what would the diachronics of a production regime look like? Richard Nelson constructs a model of co-evolution (Nelson, 1995). Economic institutions are not converging on a global basis because they co-evolve with regional technological progress, industrial structures, political programmes and political institutions. The emerging specific national constellations of industry structure is responsible for institutional advantages in global competition.

This is remarkable for a version of evolutionary economics because it goes beyond mere efficiency as a selection criterion and explicitly involves the context of science, politics and law as selective environmental pressures. (Bijker/Hughes/Pinch, 1989). From the standpoint of systems theory, however, this would appear not as a full-fledged co-evolution of autonomous evolving systems but only as a co-selection in the same evolutionary process, as a mere enrichment of the criteria for selection concerning market efficiency by further criteria which operate in the environment of the institutions. This version of evolutionary economics is modelling social evolution according to a classic pattern of natural selection in which various institutions co-evolve in a narrow sense so that they constitute selective environments for one another.

One does, however, pay a price which is too high for overcoming an exclusively economic view of evolution, which in itself is to be greeted (the market as the exclusive selective environment of the firm). What gets lost is the idea of an autonomous evolution of the economic system which, particularly for a multiplication of the perspectives, should not be relinquished. The result is a de-differentiated model of social evolution in which the diffuse selector of "society" exerts diffuse

environmental pressures on the adaptive economic institutions. One still can weight the various effects of these pressures of environmental selectors differently (for enterprises primarily the market with secondary influence of politics etc). Taking this to a logical conclusion, however, such a process leads to a general de-differentiation of institutions given that there is no space for autonomous evolving institutions in such a diffuse co-selection model.

The history of production regimes displays itself as a co-evolution in its strict sense. This means - contrary to a unified social evolution in which there is diffuse environmental pressure of various selectors on social institutions - that several autonomous systems are exposed to their very specific evolutionary mechanisms. Each of them has different patterns of variation, selection and retention. Result is a multitude of autonomous evolutionary processes which in their turn influence each other via mechanisms of co-evolution. There is no unified trajectory within one production regime which would arise from the social environment by virtue of natural selection. Rather, a variety of diverging evolutionary dynamics are going on simultaneously within one regime. Independent evolutionary mechanisms in the autopoietic systems of the economy, politics, law, science, education force their institutions within the production regime to take an idiosyncratic evolutionary path. And the production regime in its turn provides for its specific mechanisms of co-evolution which regulate how these evolutionary paths are influencing each other.

V Channels of Co-evolution

Autopoiesis theory has transcribed the dynamics of co-evolution as a "structural drift" with indicators for analogue or digital forms (Maturana & Varela, 1988: Ch. 5; Luhmann, 1997: 777). However, if one wishes to understand the independence of the production regime, one must not merely look at the individual evolutionary paths of participating systems but one must analyse more specifically whether and how mechanisms of the reciprocal influences have been developed within in the process of co-evolution itself. This is the second source of the varieties of capitalism. The first source can be found within the individual subsystems. Economic institutions have always been shaped by specific legal, political, scientific, educational developments in their region. They display cultural particularities, the history of which can only be explained in relation to the special histories of other systems. The other source of the capitalist variety can be found on the border between cultural provinces, within the production regime itself, where particular co-evolutionary relations within its partial institutions emerge.

The hypothesis provides that the relevant differences between production regimes are traceable to the regional political and legal histories as well as to their peculiar mechanisms for co-evolution. These are interpreted as various structural links between autonomous subsystems which irritate each other. The various institutional traits of production regimes appear to be dependent on how co-evolution is arranged in two different dimensions. One concerns the quality of the co-evolutionary influences, the other concerns the density of co-ordination.

(1) As regards their quality, the mutual influences of the institutions are either

(a) *irritation*: external perturbations stemming from one institution affect the internal variety mechanisms of the other institutions, or

(b) *simulation*: the mechanism for selection of one institution reconstructs internally the selection criteria of the other institution, or
(c) *endogenous symbiosis*: the external results of selection of one institution are incorporated into the restabilisation mechanism of the other.

- (2) As regards the density of their co-ordination, the co-evolutionary contacts can be typified according to the following differences:
- (a) spontaneous vs. organised
 - (b) simultaneous vs sequential
 - (c) fragmented vs. integrated
 - (d) antagonistic vs. co-ordinated

The hypothesis shall be sketched by drawing from the experience of *Just-in-time* contracts in the USA and in Germany. Where traditional comparative law merely sees similarities, convergence or chances for legal harmonisation, and where institutional theories presuppose a pressure of selection towards efficiency, our approach identifies drastic differences in legal rules as well as institutional advantages of production regimes and traces them back to the peculiar mechanisms of institutional co-evolution.

VI. Co-evolution just in time

Just-in-time arrangements are contracts between automobile-assemblers and their suppliers. As against the traditional market contract where the supplier is an independent market actor, just-in-time contracts integrate the supplier almost totally into the production arrangements of the assembler. As a satellite firm, the supplier is supposed to comply to the general business plan of the assembler as well as to specific orders and to deliver the customised parts “just in time”. At first sight the similarities of the development in the different countries are indeed astounding. Coming from Japanese origins, just-in-time contracts have found their place in commercial practice in both the USA and in Germany and have been assimilated by the law of both countries as exchange contracts with elements of co-operation. (Rohe, 1998; Oechsler, 1997: 473ff). Usually formulated as standard contracts, they are subject in both the USA and in Germany to judicial control via legal concepts, policies and principles which are considerably similar. Both legal systems have recognised standard contracts which are stipulated by collective actors for a particular number of transactions as being legally enforceable.³⁷ Both legal systems make their validity dependent on certain conditions which clearly differ from individual contracts and make them subject to special judicial review according to general principles (good faith, fairness, unconscionability).³⁸ Interim score: 1 : 0 for convergence.

³⁷ Westphalen, 1998; Ulmer, Brandner & Hensen, 1997: Einl. Rz. 1ff., 80; Wolf, Horn & Lindacher, 1994: Einl. Rz. 4ff.; Pohlhausen, 1978; Dawson, Harvey & Henderson, 1993: 508ff.; Chirelstein, 1992: 56, 68; Kessler, Gilmore & Kronman, 1986 2f., 583ff.

³⁸ Which includes the exceptional feature of open control of content in Germany, compare the decisions of the Federal Court of Justice or ENTSCHEIDUNGEN DES BUNDESGERICHTSHOFES IN ZIVILSACHEN (BGHZ) 22, 90, 97ff; Ulmer, Brandner & Hensen, 1997: Einl. Rz. 80; as regards the USA, compare. Kessler, Gilmore & Kronman, 1986: 586 with refers to the practice of the courts which rely on the “due process of law” and the principle of “unconscionability”.

A score of 2 : 0 does not appear to be too far away if one regards the quality of co-evolutionary contacts. By accepting just in time standard contracts, both legal systems favour leaving the development of the new forms of contracts to the whims of coincidental irritations (Model 1a). Economic innovations irritate the legal system as "cases" for isolated court decisions which rule on the validity of individual contracts. In addition, both use a mixture of simulation and endogenous symbiosis (Model 1b and 1c). They reconstruct economic criteria in the judicial review decisions and they assimilate results of economic selection in their doctrine.

Divergence, however, manages to score a point. The mixture of model 1b and 1c is decisive. And here the legal systems differ. Germany favours simulation (model 1b), America favours endogenous symbiosis (model 1c). In Germany, an extraordinarily high degree of judicial control exists using mainly legal criteria and incorporating some economic criteria (model 1b). American practice, however, incorporates directly the results of economic evolution of just in time *per se* (model 1c) which it only rarely corrects through recourse to its own legal control mechanisms.

The key to this different practice lies in the endogenous symbiosis of economy and law, that is to say, the way in which law integrates selections of its economic processes (Casper, 1998). It is arranged differently in both countries and establishes different requirements for the informational capacities of the courts (Schwartz, 1992).

In the USA, it is individual firms that secure their contractual imperialism through the aid of local legal expertise. This decentralised mode of private governance leads to a plethora of standard contracts - indeed, there are so many that it is difficult to gain an overview of individual sectors of industry which transcend the detailed control of the informational capacity of the courts. This is the reason why judicial controls in the USA are relatively underdeveloped despite the similarity of the legal instruments. In Germany, however, it is not individual firms but business associations which, with the aid of considerable legal expertise, formulate rather centralised contractual regimes which, in principle, apply throughout the entire industrial sector. This phenomenon of private regulation in entire sectors of industry through business associations is much less common in the United States (Casper, 1998).

Moreover, in Germany, contractual regimes which are specific to a particular branch of industry are frequently scrutinised by public bodies. The Federal Cartel Office or *Bundeskartellamt* is often called upon to assess contractual aspects as well as anti-trust issues. As a result, German courts have a relatively good overview of the universals in this sector such as the distribution of economic risks, transparency, the political aspects and legal justification behind rules. In contrast to the USA, the judicial review of contractual regimes is highly frequent and highly detailed. Subsequent to the relatively recent AGB-Code of 1976³⁹ there have been thousands of judicial decisions. Thus, we have a score of 1 : 1 in the match between Convergence and Divergence.

Divergence finally leads with 2 : 1 when the density of co-evolutionary contacts come into play. In the USA, contacts between standard contracts are hardly co-

³⁹ BGBl. I 3317.

ordinated even within one industry sector. Just in time regimes are implemented by individual firms and the other market side often reacts with its own standard contracts; the relative market power decides whether or not one of the colliding form of contracts prevails. American courts which, as has been already said, exercise relatively weak control in their review of standard contracts, react *post hoc* when unacceptable risks have materialised. But then they do not review standard contracts, they apply tort law. This explains *inter alia* why one speaks of the tort revolution in America on the one hand and the death of contract on the other (Gilmore, 1995). The dominant economic control exercised by courts in the USA is exercised through tortious duties of conduct and not through detailed review of the distribution of risks inherent to standard contracts. At the same time, the enactment of the Uniform Consumer Credit Code 1974 and the activities of the Federal Trade Commission (FTC) enhances the power of legislative intervention particularly as regards the regulation of individual questions concerning the completion of contracts (Kessler, Gilmore and Kronman, 1986: 586f., 592ff.). A similar fragmentation of institutional decision-making is illustrated by the intervention of the regulatory agencies and the legislative interventions of the legislature of individual states. (Kessler, Gilmore & Kronman, 1986: 593). To conclude, in the US the picture of a market oriented-fragmented-sequential co-evolution is displayed. There is a plethora of just in time regimes where judicial intervention is markedly limited.

This is in direct contrast to the density of co-ordination in Germany. Whilst the position is not akin to the position in Austria which is characterised by a centrally organised and integrated co-evolution of production regimes, the German case is characterised by co-ordinated interactive co-evolution. Considerable co-operation already exists in the economic sector. Standard contracts are constituted by the majority of business associations whose peak organisations are often involved.⁴⁰ Sometimes, agreements on standard contracts are reached with the opposite market. At the same time, agreements with third markets are reached especially concerning insurance as regards risks of liability (Casper, 1996: 7ff). Administrative and political bodies, in particular the Federal Cartel Office, are activated at a relatively early period together with other supervisory bodies in relation to the agreement. Relatively few just in time regimes exist; those that do exist, however, are highly co-ordinated.

A comparative economic politics study (Casper, 1998) has contrasted the US and Germany in their density of co-ordination:

- (1) Germany: High regulatory capacities of business associations.
USA: not associations but decentralised regulatory capacities of firms.
- (2) Germany: Intensive horizontal regulatory co-ordination between associations.
USA: Limited co-ordination.
- (3) Germany: Intensive vertical co-ordination between firms, associations, public supervisory authorities and courts.
USA: Not state control, but sporadic judicial control

⁴⁰ Within the framework of the legislative process of the ABGB, the associations were not successful in pushing their demand for the enactment of a procedure for the nomination and creation of privileges of specimen conditions whilst a corresponding practice within the legal framework provided by §§ 2, 38, subsection 2 S.3 GWB (Act against the Restriction of Competition) was developed under the supervision and control of the Federal Cartel Office compare. Ulmer, Brandner & Hensen, 1997: Rz. 21.

The same author comes to the following conclusion:

"The advantage of the German associational governance system is that the 'para-public' links between the Courts, Kartellamt and firms through trade associations are more likely to produce new legal frameworks customized to the precise needs of firms" (Casper, 1996: 28).

And the German courts intervene. In the renowned "Pizza-Salami" case, the Federal Court of Justice (*Bundesgerichtshof*) held that it was impermissible to exclude via standard contract the duty to inspect goods upon delivery contained in the commercial code (*Handelsgesetzbuch*).⁴¹ The reason for this is to protect the supplier from claims for guarantees which are more difficult to prove later on and to enable him at the same time to protect himself against further damage.

This is totally incomprehensible from the Anglo-American standpoint - a clear case of Eurosclerosis. A judicial dictate of this nature appears as highly traditional. It is bound to the old supplier model relying on a strict distinction between the boundaries of the firms. It does not sufficiently avail itself to new forms of hybrid or symbiotic contracts. Secondly, it is paternalistic. This type of judicial review does not only seek protection of consumers but also corrects the transfer of risks in the professional business sphere. Thirdly, this raises the issue of transaction costs. Assemblers must, by law, retain their control over receipts. This entails an unreasonable duplication of quality controls in view of the initial control of the suppliers and the control of receipts of the assemblers. Fourthly, the judicial dictate is hostile to innovation. With its harmonised regulation it inhibits innovative contractual regimes which attain an efficiency advantage as they render the rigid boundaries of enterprises more permeable.

The decision of the Federal Court of Justice makes sense, however, if one takes into account the varieties of capitalism. After everything that has been said about the special path of German production regimes, it is consistent and reasonable for the courts to intervene. The actual criterion as regards just-in-time contracts appears to be whether or not the contractual regime represents an authentic innovation. The suggestion is to distinguish between authentic innovations which increase the efficiency of the organisation and spurious innovations, i.e. mere price strategies which are made possible only through the transfer of risks to suppliers (Casper, 1998). Thus, the policy principle for the judicial intervention is not to protect medium sized companies nor to treat the interests of suppliers preferentially. Rather the courts support technological co-operation between firms through protection of autonomy and facilitation of co-operation. Accordingly, the judicial review produces incentives for two different types of just-in-time contracts.

(1) Either the contract respects the organisational boundary of supplier and assembler. It retains the inspection duties but also separates the risks.

⁴¹ BGH NEUE JURISTISCHE WOCHENSCHRIFT (NJW) 1991, 2633; BGH NJW 1991, 2631 concerns the unenforceability of an AGB-agreement according to which the party to a contract is denied the possibility for alteration and reduction but who nonetheless retains the right to withdraw from the contract. See Westphalen, 1998: Rz. 21; compare also Wolf, Horn & Lindacher, 1994: Einl 69 m.w.N., Rz. Z 106. See also Schmidt, 1991: 141, 150. As regards the decision of the Federal Court of Justice: Lehmann, 1990: 1849, 1851ff.

- (2) Or it transfers the inspection duties of the assemblers to the suppliers so that the boundaries between the firms are blurred and a hybrid organisation between exchange and co-operation is formed. In this case, however, the risks are borne collectively.

The result is as follows: it is not possible to strike out the commercial law provision unless the assembler leads to a commensurate distribution of damages so that the compensatory clauses of the risk of liability as regards initial controls is also borne by the suppliers. The old fashioned commercial duty of inspection when it is applied to Just-in-time contracts works as a lever in order to create, aided by the co-operation of business associations and the Federal Cartel Office, a contractual model for Just-in-time supplier contracts which is tailored for the regional production regime.

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