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1. Comparative evolutionary analysis

The issue of this roundtable is about what are the aspects of reality which existing theoretical economic models miss; in summary economic models do not seem to explain:
   a) how tax haven have developed in opposition to OECD tax systems;
   b) why tax havens are so adaptive and competitive;
   c) why tax haven actually persist against the predominance of OECD tax systems.

Theoretical models do not claim to replicate reality, but are aimed at providing a stylized description of it, supported by empirical data; as a result they do not provide account of tax complexity and seldom do not aim at describing the evolutionary structure of tax systems. By contrast, “institutions”, through their dynamic complexity, can provide an affective account of underlying causal processes, if an evolutionary approach is adopted. An evolutionary approach is based on the idea that a given structure is the result of the constraints that shaped its current

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2 North D. (1990) includes both formal and informal rules in the definition of institution; institutions are an historical accident due to a balance of power and the emergence of appropriate social values, and therefore and are not exclusively wealth-maximizing institutions which are economically rational. Buchanan (1975) defines “laws and institutions” simply as rules, i.e. prescriptions used by members of community or group to order repetitive, interdependent relations specifying which actions are required.
situation. This dynamic complexity can be studied in tax matters by *comparative evolutionary analysis* (CEA), which adopts an institutional approach and focuses on tax evolution using the tools of comparative analysis of tax systems\(^3\). We will therefore try to address the missing points of economic models by adopting an institutional and evolutionary approach.

CEA specifically focuses on the circulation of “tax models”: a “tax model” is defined here as a *set of structural elements combined together to serve a specific function*, while a “tax mechanism” is the implementation by a given country of a tax model as an *actual set of regulatory arrangements*. Examples of corporate tax models are: tax treatment of corporate distributions to avoid double taxation, the limitation to the deduction of interest to prevent tax leverage; the consolidated corporate taxation to allow offsetting of profits and losses, the tax treatment of corporate reorganizations to ensure tax neutrality\(^4\).

Both tax models and tax mechanisms are made by a *set of structural elements*, but while a tax model is an archetype, a tax mechanism is a living structure; tax models thus tend to have a general purpose and serve as a paradigms for tax policy and tax change. As a result *tax models circulate among countries through the implementation of tax mechanisms*, and this is precisely the evolution of tax models.

Evolution has received a wide-ranging explanation in natural sciences, but can also be used in social sciences. In natural sciences the “unit of selections” are the members of a population, because it is through them that the genetic pool is transferred; natural selection is then determined by variations among such units of selections\(^5\). By analogy, “unit of selections” in social evolution are institutions, because it is through them that legal structures are created and maintained\(^6\). Clearly human behaviour is not determined by genes through the “units of selection”, as purposive intent in social sciences is overwhelming\(^7\).

This evolutionary view is taken in economics, for example, by the neo-institutional approach, which eschews models based on the frictionless ideal markets, but focuses on transaction costs to explain the choice between market and non-market solutions, and interprets institution as a framework in which transaction costs may be reduced\(^8\).

One should therefore focus on “fiscal institutions”, which can be defined here as procedures (or any other similar legal structure) which deal with every kind of question affecting the group’s internal

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\(^5\) The variations are not functionally oriented, but may be random or non-purposive; through the continuity of the genetic pool better adapted members leave increased numbers of off-springs and variations of gene combinations are preserved when a member or a group has acquired an advantage in the survival process.
\(^6\) Neo-institutional economics, for example, proposes that individual decisions are made in a social context and therefore it demands a model of selection to explain social outcomes, and studies the logic of contracts and economic organizations in competitive markets, showing that institutional arrangements are optimal insofar as they reduce transaction costs: this is still a theory of organizations and market practices in an ideal-type competitive market with transaction costs: Demsetz (1988).
\(^7\) Hirshleifer J. (1978), and Hirshleifer J. (1982); see however for a different view: Wilson O. (2005)
\(^8\) The neo-institutional approach focuses on the details of the environment in which transactions take place, and it suggests an empirical approach that requires the collection of more detailed data on individual transactions rather than data on quantitative aggregates. This approach is process-orientated, dynamic, tends to be evolutionary, and seeks to identify the principal factors which have been responsible for institutional development. As a result this approach rejects market equilibrium analysis and instead places emphasis on the adaptation to disequilibrium, hypothesising that “inefficiency” gives rise to adaptive efforts to minimise costs; see North D. (1990).
and external relations in respect to raising tax revenues. In the long run, fiscal institutions become the most stable part of tax systems, continuously generating binding rules to solve cases, so that they acquire a generative-constitutive function of law-in-action: they become “the matrix of everything else.” A tax system is a set of fiscal institutions: each tax mechanism is generated within the tax system by fiscal institutions, which are therefore the “units of selection” of tax models circulating among countries.

Institutional selection is then determined by variations among such fiscal institutions, operating as units of selections. The variations are functionally oriented and subject to evolutionary pressures due to the competition among fiscal institutions and tax systems. Institutions persist because routines are reinforced by cumulative feedback, so that routines exhibit durability that makes them a surrogate for the gene in economic and legal evolution. This applies to the selection and circulation of tax models; that tax models persist because routines are reinforced by the cumulative feedback of tax reforms, so that there is persistence of tolerably fit tax models.

The evolutionary process of tax models represents a combination of constancy (inheritance) and variation, as there must be an unchanging as well as a changing element and even the changing element itself must be heritable if a system can be said to evolve. As a result, endurance of a given tax model (through adoption in different countries) does not mean perfect efficiency, but simply implies that other possibly efficient tax models did not pass the threshold of selection; in turn emergence of new tax models (through adoption in new countries) may imply only a temporary situation of fitness; finally extinction of a tax model (through discharge in different countries) may be a consequence of a form of excessive predominance which disrupts a contingent comparative advantage.

Evolutionary success of tax models is assessed in terms of the number of tax mechanisms gaining relative predominance and resulting from models which are relatively or tolerably fit. Selection of tax models however does not amount to a struggle among different units, a sort of social darwinism carried out through direct competition among selection units: competition is a special case, not a defining characteristic, of selection.

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9 Differing degrees of discretion need to be exercised within the different fiscal institutions and under the restraints of different checks. Thus tax courts are given the greatest freedom from external control as their task is to adjudicate on a case-by-case basis, while individual preferences are revealed through the political process and the majority principle. In all cases of use of discretion – with the exception of truly political decisions taking the form of a tax statute or regulation – there must be a justification of the decision provided for the individual case.

10 Hart-Sacks (1994).

11 Political economy and public choice provide an account on how tax policy decisions are taken at the level of local elites; Farber D., and P. Frickey (1991); Hettich W., and S.L. Winer (1999); Radaelli C.M. (1997), Swank D. (2004).

12 Purposive function is essential in social sciences and thus variations are oriented to achieve results; evolutionary institutional variations are mainly functionally oriented, differently from variations among natural units of selections, which are random; Cavalli Sforza (2004).


14 The competition among tax models does not lead to perfectly efficient tax mechanisms resulting from a spontaneous order driven by market forces, as the complexity of tax systems introduces transaction costs which limit this evolution toward complete efficiency; such costs are specifically determined by institutional and cultural constraints and often determine patterns of path dependence; see Komesar N.K. (1994); Mattei U. and F. Pultini (1991).

15 Hirshleifer (1982).

16 Tax mechanisms, once created live on: they are kept in existence by factors such as the effective machinery of radical change: one of the most striking features of tax models is the power of survival. Watson A. (1995)


2. Patterns and outcomes of tax evolution

a. Emergence of a tax haven model

Evolution of tax models has basically led to two macro-groups of countries. On the one side, there are “OECD countries” whose tax systems are basically aimed at solving common problems of raising revenues through taxes. On the other side, there is a more restricted number of countries which have tax system basically aimed to provide low or nil tax rates (“tax havens”). A “tax haven” can be broadly defined here as a comprehensive model of a national tax system in which tax rates are significantly lower than those of other tax system.

Evolution of tax models among OECD countries is quite complex, as one can distinguish here three different levels of evolutionary comparative analysis:

a) at the deep level, there is a common core of tax systems of countries in relation to basic tax problems;

b) at the intermediate level, there is circulation of tax models among different countries;

c) at the surface level, there is regulatory articulation of domestic “tax mechanisms” as responses to tax problems.

The core of tax problems found at the deep level is basically common to all OECD countries adopting normal tax systems and fiscal institutions and generally having corporate and individual taxes. Each basic tax problem is truly common to all countries adopting similar taxes and similar fiscal institutions, even if local solutions may show remarkable differences. This range of basic tax problems is co-extensive with the common core area of OECD tax systems. OECD countries adopting similar fiscal institutions form, in this respect, a common tax family.

The intermediate level of evolutionary comparative taxation among OECD countries is the development of tax models as possible responses to tax problems. At this intermediate level there is a selection of partially different and alternative policy choices aimed to solve common problems. Therefore we can see that, among OECD countries, while at the deep level (common core) there is a single common tax family of countries adopting similar taxes and fiscal institutions, at the intermediate level there is emergence of various tax models. The emergence of differing tax models in the market for tax ideas is the stage precedent to the process of circulation of tax models among OECD countries, which occurs mainly by way of legal transplants. Thus there are several tax models to which OECD countries makes reference, in a process of policy learning.

By contrast, the evolution of tax havens is remarkably simpler than that of OECD countries. In the evolution of tax models among tax havens at the deep level, there is a common core of legal structures basically providing for low or nil taxation, at the intermediate level the circulation of tax models is quite limited, while at the surface level one can find different local tax mechanisms serving the function of providing tax environments significantly more favourable than those of OECD countries. The homogeneity of these three levels of evolution among tax havens suggests that tax havens do interact with OECD countries, but it is not clear whether tax havens are still actually within the ambit of OECD tax models or whether they compete with them proposing an alternative tax model. This requires further consideration of stabilizing and disruptive selection in CEA.

19 Here we are faced with the discovery of a common base of tax systems and comparative analysis is mainly directed to comparable common elements and interest is focused on common core and stabilizing selection: in relation to the most common features of various local tax mechanisms, one can trace back in time a common core of taxes and fiscal institutions which have subsequently evolved as complex and highly differentiated local structures.


b. Stabilizing selection among OECD countries vs disruptive selection by tax havens

The outcomes of tax evolution at multi-country level are: tax convergence and tax divergence:

a. “tax convergence” occurs through stabilizing selection, which entails the elimination of the elements of a domestic tax mechanism which would make it quite dissimilar and structurally variable from the others; in a situation of full tax convergence the development of new tax mechanisms is blocked in different countries, while the generally adopted tax model prevails and generates very similar tax mechanisms (i.e. tax mechanisms which do not have major differences from the tax model); full convergence in OECD countries is limited to specific areas covered by EU tax Directives;

b. “tax divergence” occurs through disruptive selection, which entails the variation of all elements and thereby the creation of an alternative tax policy for solving common problems; “tax divergence” can occur either (i) at the level of tax mechanisms, or (ii) at the level of tax models.

Tax convergence is the result of general predominance of a given tax model through the various tax mechanisms which are originated from it; tax divergence entails the stabilization of all or major elements of tax mechanisms of certain countries which present remarkable variations from the other prevailing basic tax models and leads to a the emergence of tax models encompassing all the variations adopted at domestic level.

Stabilizing selection drives countries to select the predominating tax model adopted by OECD countries, while disruptive selection drives countries to become tax havens. Hybrid situations are not advantageous. As the number of OECD countries (adopting different tax models belonging to the same common base) exceed that of tax havens, clearly there is tax divergence between tax havens and OECD countries, driven by disruptive selection.

3. The evolutionary stable strategy of OECD countries

Stabilizing and disruptive selection co-exist in the evolutionary process of circulation of tax models: the former explains the spread of predominating OECD tax models, while the latter explains the emergence of the alternative tax model of tax haven. One however should also explain:

a) how stabilizing selection of OECD tax models is achieved, and

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22 “Stabilizing selection” is a selection tending to keep domestic tax models: domestic tax mechanisms which conform with the predominating tax model tend to remain constant, while domestic tax mechanisms which do not conform with the predominating tax model tend to be taken over by those conforming with the predominating tax model.

23 “Disruptive selection” is a selection favouring domestic tax mechanisms relating to a certain basic tax problem which deviate from the predominating tax model; in this case selection favours domestic tax mechanisms which are radically different from the predominating tax model.

24 “Partial tax convergence” occurs through partial stabilizing selection combined with partial disruptive selection and can occur at the level of (i) tax mechanisms or (ii) tax models; the former is quite pervasive among local mechanisms encompassed under the same model, while the latter occurs only in the long run.

25 Convergence relating to the structural elements of tax models is a different concept from the economic convergence of effective tax rates, which is an additional dimension of wider tax convergence of systems; Slemrod, J. (2004)

26 “Tax eccentricities” are mainly found in OECD countries in certain areas of personal income taxes, consumption taxes, property and local taxes, particularly in the U.K., France and Switzerland; Messere (2003), p. 184.
b) why disruptive selection prompted by tax havens can actually persist, in spite of the predominating OECD tax models.

As to at issue a) we use an explanation based on network externalities and evolutionary stable strategies. We will deal with issue b) in the next paragraph.

There is a close link between network externalities and the predominance of OECD countries’ tax models, because such models are a commonly known and observed regularity of behaviour that solves common tax problems. Network externalities have also a specific effect called informational cascade: the relative efficiency of a tax model by an individual country can be affected by the information shared with that country by other individual countries in a process of policy learning taking place in the market for tax ideas. The expected efficiency of adopting a specific tax model in the informational cascade is an increasing functions of the number of other individual counties adopting such a model; complex network structures may amplify or distort this effect.

Network externalities and informational cascade lead to the concept of evolutionary stable strategy, which captures the idea that an equilibrium strategy should be stable against small invasions by “mutants” playing some other strategy and that communication solves coordination problems. At some point, among different tax models, enough actors (countries) choose predominating tax models as a single strategy, with the result that such a strategy will be impervious to occasional mutations by rival minoritarian models.

We can conclude that network externality and informational cascade effects attained through policy learning lead to the stabilization of OECD countries tax models; this in turn may lead to an evolutionary stable tax strategy reinforced by efficient forms of path dependency by individual countries which adopt one of the predominating tax models in a pattern of stabilizing selection and tax convergence which preserves a relatively fit tax model.

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28 The essence of network externality is that the value of an activity to the individual actor depends on how many other individual actors engage in the same activity; certain decisions are geared to the level of potential effective interchange, unless a specific need dictates a different choice. The more widespread is the network to which an individual actor is connected, the greater the probability that of fruitful interchange.
29 The concept of evolutionary stable strategy has been initially developed by Maynard Smith (1982).
30 Sugden (1986). The stabilizing selection of tax models can also be interpreted by an approach which treats predominating tax models as a description of the pattern of behaviour that emerges in iterated prisoner’s dilemma: when taxing countries interact quite often they reach an equilibrium in which both parties produce a collective good, be it a tax agreement or the selection of a tax model operating reciprocally. This situation occurs in the so called “coordination games” which are exemplified by the rule of driving on the right (or on the left), given the possibility of just two alternatives; non-compliance with the dominating model triggers a factual sanction, irrespective from enforcing legal measures.
31 Modification of structural element are however possible, as there can be competition among elements of national tax mechanisms belonging to the same tax model.
32 There are various types of path dependence and first degree and second degree path dependence are efficient on a cost-opportunity basis; see Liebowitz and Margolis (1995). First degree path dependence” is present when there is an element of persistence or durability in a decision but there is no prediction of future situation; ”second degree path dependence” is present when there is an element of persistence or durability in a decision and there is a subsequent recognition that the opportunity cost of durability is higher that that of change.
4. Two alternative views of persistence of tax havens: symbiosis or competition?

There are two approaches to explain why disrupting selection of tax haven models can persist, in spite of the opposite pressure of stabilizing selection of OECD tax models:

a) tax havens are new mechanisms emerging “from within” the ambit of OECD tax and interacting with them in symbiotic arrangements;

b) tax havens form a unified tax model competing with OECD countries’ tax models.

a. Symbiosis arrangements of OECD countries with tax havens

To explain why countries departed from the OECD group an evolutionary explanation shows that tax havens are new mechanisms emerging “from within” the ambit of OECD tax models and interacting with them in symbiotic arrangements (parasitism or true symbiosis). This explanation evidences that tax havens have evolved through disruptive selection only at the level of tax mechanisms (tax divergence).

Disruptive selection at the level of tax mechanisms entails the stabilization of all or major elements of tax mechanisms of a group of countries which present remarkable variations from existing basic tax models; these elements being stabilized make the domestic tax mechanisms of these countries different from those of other countries but do not lead to the emergence of a new tax model.

Under this explanation tax havens are viewed as a set of highly variable tax mechanisms which have been activated by disruptive selection, so that the generally adopted OECD tax models are now confronted with alternative tax mechanisms, but not with an unified alternative tax model. These mechanisms strongly compete with OECD countries in terms of effective rates and other tax advantages, but are basically intertwined with OECD tax systems based on the interconnection of corporate taxes and flows of cross-border income. Whether a coordinated reduction in the tax preferences granted to mobile firms is beneficial or harmful for the competing countries depends critically on the elasticity with which the firms’ organizational structure responds to tax discrimination incentives offered by tax havens.

This process has led to the creation of tax mechanisms which are alternative to those of OECD countries, as they address basically the same tax problems but solve them in a radically different fashion (exemption rather than taxation), and opportunistic behaviour by multinational mobile firms is aimed at obtaining such benefits through tax planning structures. This full tax divergence at the level of tax mechanisms has acted as a major cause of tax change and has disrupted a competitive equilibrium among OECD countries.

As tax havens have developed mechanisms competing with those of OECD countries, there is a symbiotic situation, i.e. an underlying mutualism in which dissimilar partners (OECD countries vs tax havens) are engaged in a stabilizing cycle, in which there is a overt asymmetry between the partners and which has different effects. This situation is neither explained by explicit agreement or political control, and therefore it falls outside of the areas of explicit legal or political rules. Symbiosis here occurs at the level of governments’ interests; taxpayers have a different opportunistic stance, as they minimize tax burden on the basis of the existing rules and situations.

34 Palan, Ronen (2002).
We consider here, for the sake of simplicity, only bilateral situations of symbiosis between OECD countries and tax havens; there are two basic modes:

a) the tax haven benefits, the OECD country is damaged (parasitism);
b) both the tax haven benefits and the OECD country benefits (true symbiosis);

Case a) is widespread and is a situation of parasitism by the tax haven, which develops specific tax mechanisms to reap benefits in spite of the opposing regulatory interests of the capital-exporting OECD country. Tipically the tax haven offers lower or nil tax rates or tax secrecy to attract highly mobile investments, while the OECD country has an interest to tax income on such investments and to ensure transparency. In these cases unilateral rules or multilateral policy responses by OECD countries may prove quite ineffective, as long as the tax haven specific mechanism has a competitive advantage.

Also case b) can be widely found, as it a situation of mutual advantages for both OECD country and tax haven, regulated by an underlying and implied symbiotic agreements. For example a tax haven offers certain specific tax advantages, which are tolerated and closely monitored as “tax shelters” by a related OECD country. In these cases unilateral rules or multilateral policy responses enacted by OECD countries may sever the implied agreement more effectively than in case a), because the tax shelters need the cooperation of the OECD country to operate.

b. Tax havens as a unified tax model competing with OECD countries

An alternative explanation of disrupting selection prompted by tax havens model shows the emergence of a unified tax model shared by tax havens and strongly competing with the tax models of OECD countries.

We have seen that network externalities and informational cascade explain stabilizing selection of the predominating OECD models; likewise when network externalities and informational cascade effects are not sufficient to the stabilization of groups of countries adopting similar tax models, the evolutionary stable tax strategy is broken (or not attained), and disruptive selection of differentiated tax models can occur. The emergence of a unified tax model shared by tax havens through disruptive selection of the evolutionary stable tax strategy of OECD countries may thus be caused by the lack of network externalities. This explains, for example, why OECD countries tend to exchange tax information or to conclude tax treaties, while tax havens are deeply reluctant to do so.

The disruptive selection prompted by a unified tax havens’ model can also be interpreted by a path dependency explanation. Path dependency occurs when minor initial conditions are reflected in one of the various alternative states which are generated subsequently. Among the various types of path dependence the so called “third degree path dependence” is present when there is an element of persistence or durability in a decision and there is a subsequent recognition that the resulting

35 The situation in which the OECD country benefits and the tax haven is damaged is not considered here, as it is quite rare. The situation in which the tax haven benefits and the OECD country is unaffected is not real symbiosis.
36 Slemrod, J. and Wilson, J. D. (2006)
37 Such as CFC rules or treaty rules like the “clause”.
38 Such as OECD Codes of Conduct.
39 Such as CFC rules or treaty rules like the “clause”.
40 For example certain transactions in the Netherlands Antilles are allowed by the Netherlands and other OECD countries.
41 Spontaneous orders have a memory, that is the state of the system at any point in time depends on the history of the system: the system is therefore path dependent.
situation is inefficient. A case of third degree path dependence determined by inefficient persistence of status quo pursued by political bodies may impede the export of OECD tax models into certain transition countries and the persistence of one or more models eventually inspired by tax havens.

References

Buchanan J. M. (1975), The Limits of Liberty: Between Anarchy and the Leviathan, University of Chicago Press.


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42 Liebowitz and Margolis (1995)


