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Methodological Remarks on *Anti-equilibrium* by Janos Kornai

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Abstract: The subject of this paper is Kornai's concept as contained in Anti-equilibrium. The aim of the paper was to provide a critical analysis of this concept. The analysis focused on the methodological aspect of Anti-equilibrium, namely on the concept of the explanation adopted by the Hungarian economist. The research method used is textual analysis. The result of this analysis allows, as it seems, to see an important methodological flaw of Anti-equilibrium. The thesis of this article is that this defect did not allow Kornai's proposal to be treated as a viable competitor to neoclassical economics.

Keywords: general equilibrium theory, neoclassical economics, methodology of economics, centrally planned economies.

1. Introduction

It is a truism to say that modern economies are far from being pure market economies. This can be justified in various ways: by showing the multiplicity of public regulatory institutions, the variety ways in which these institutions intervene in the operation of the market mechanism, or by revealing the share of the public sector expenditure in GDP. Neoclassical economics provides good tools for the analysis of market economies, but even the most advanced theories developed within public sector economics do not attempt to create a comprehensive model of a not entirely market economy. However, an attempt to construct such a theory can be found in the history of economics – namely Janos Kornai's Anti-equilibrium (Kornai, 1971).

Kornai's work was written in a special historical context, i.e. the centrally managed economies in the Eastern Bloc. Their permanent inefficiency raised questions about the nature of the economic system and the relations linking the agents operating within it. In particular, attention was drawn to the nature of the tools used to 'manage' the agents within this system. Kornai's ambition was to create a theory that would take into account all types of relations linking actors in the economy, would include both centrally managed and market economies.

The aim of this paper was to provide a critical analysis of Kornai's concept, allowing to see what appears to be an important methodological defect in it. The thesis of this paper is that this defect makes it impossible to treat Kornai's idea as a viable competitor to neoclassical economics. The paper is organised as follows: Section 2 discusses the specifics of Kornai's approach against the background of neoclassical economics. Section 3 addresses the key methodological postulate of anti-equilibrium, namely the dualistic description of the economic system. Section 4 describes the types of relations within the so-called control sphere postulated by Kornai, and Section 5 reconstructs Kornai's scheme of explanation. In section 6, this is compared with that used in neoclassical economics. The final section presents the consequences of this comparison.

2. *Anti-equilibrium* and General Equilibrium

In order to accurately encapsulate the concept presented in *Anti-equilibrium* (Kornai, 1971), it must be emphasised that it was formulated as an alternative to what Kornai calls General Equilibrium Theory (GET), and must be presented in this context. In doing so, three things need to be clarified. Firstly, the concept was meant to be an alternative in the sense that it would be a more general theory within which GET could be interpreted as a special case. Secondly, Kornai himself presented his work as a proposal, an unfinished draft. Thirdly, Kornai's view after writing *Anti-equilibrium* evolved towards a conditional and limited acceptance of GET (Vahabi, 2018).

Anti-equilibrium contains numerous polemical references to the idea of general equilibrium, so that one can read the author's intentions fairly clearly. For Kornai, GET is a central component of the neoclassical paradigm in economics and the cutting edge of Kornai's criticism is directed against this paradigm (Kornai, 2008, pp. 214-215). However, what Kornai meant by General Equilibrium Theory (the neoclassical paradigm) can best be understood by referencing his ideas.

Kornai formulated many objections to the theory of general equilibrium, but the starting point for the criticism presented in his Anti-equilibrium is to distinguish between two types of relations that can occur in the economy between economic organisations, which are called vertical and horizontal. Preliminarily, one can define them in line with the author's suggestions: if there is a relation of subordination and superordination between organisations, one is dealing with vertical relations, while if the organisations are peers, these are horizontal relationships. The former means that the subordinate organisations are more or less deprived of autonomy in favour of the superordinate organisations. The latter, where organisations are mutually independent, is characteristic of market relations (but can also occur elsewhere). It is clear that in real economies both types of relations exist, and they can operate in a variety of configurations. However, as Kornai argued, GET assumes the existence of only horizontal relations in reality - which, according to him, is supposed to significantly impoverish the analysis of the economy. *Anti-equilibrium*, on the other hand, was supposed to contain a draft for a theory that would allow horizontal and vertical relations to be included in a single scheme, making it possible to treat GET as a special, not very realistic case.

It seems obvious that such requirements for a theory describing the economy had their origin in the specific situation of the Hungarian and other Central European economies at that time. Simplifying somewhat, Kornai's thought can be expressed as follows – there are neither purely market economies nor purely planned economies, in fact there are rather market economies, or even planned economies. Thus, one arrives at a theory of purely market economies, but in order to understand the operation of 'not purely market' economies (i.e. all of them), a more general theory is needed. Therefore, the section moves on to a somewhat more detailed discussion of the main assumptions of this concept.

3. Dual Description

The basic feature of Kornai's concept is what he calls a dualistic description of the economic system. This description consists in attributing each process occurring in reality to one of two groups: real processes and control processes. Real processes are processes defined in natural units. Control processes are thought processes (in particular decision-making), and flows of information.

The consequences of this division can be seen in the analysis of the structure of organisations. An organisation is "a social formation consisting of persons who associate in order to perform some definite social-economic functions" (Kornai, 1971, p. 37). Since within an organisation both real and control activities are performed, in order to describe them Kornai makes an analytical abstraction, and distinguishes between real and control units within the organisation. The definition of a unit is as follows: it is "an indivisible element of the economic system which behaves with definite regularity and responds to external stimuli in a regular manner" (Kornai, 1971, p. 38). Within real units only real processes take place and within control units only control processes take place, and every organisation consists of at least one real and one control unit.

Without going further into a detailed discussion, it is important to emphasise that this distinction is crucial because, according to Kornai, the action of the real units is directed by the control units, by means of flows of information passing into the real units from the control units. There are also complex relationships (flows of information) between and among the control units within the organisation. Consequently, how the economy works depends on how the control sphere operates within it. Thus, before going on to discuss how Kornai describes how the economy works at the level of economic units and organisations, one should examine the basic types of information flows between units.

4. Relations within the Control Sphere

By distinguishing a certain class of information flows between organisations (and mainly their control units) that a distinction is made between vertical and horizontal relations. The vertical relationships class consists of two subclasses:

– directives, i.e. information that carries a legal sanction; if an organisation gives such information to another organisation, it is the latter's 'immediate directive subordinate'; an excellent example of this would be various types of administrative relations, etc.
– information based on a monopoly of information; if an organisation has a monopoly on issuing certain information that is necessary for the operation of another organisation then it is superior to that organisation.

These two subclasses form the class of information by means of which vertical relations between organisations are defined. With all other flows, horizontal relations are defined.

Kornai also introduced a number of other classification criteria, among which the criterion of 'monetary-non-monetary information' (here conventionally called so, since in *Anti-equilibrium* this criterion is not named explicitly) is very important, because according to Kornai, a very important class of information flows is money flows. All 'non-money' information flows fall into two subclasses: price information, and non-price information.

Here, the observation can be made that it is doubted whether it is the money flows that carry the information that influences the organisation's behaviour, or whether it is rather the information about these flows that causes the organisation's responses. For example – it seems that it is the information about the granting of a grant that influences the organisation's behaviour, rather than the grant itself, which, incidentally, can be given with a time delay. From this point of view, money flows should rather be treated as a component of the real sphere. Notwithstanding these doubts, however, singling out

money flows (or information about these flows) as important relationships linking organisations seems to be a very useful analytical approach.

It should be noted that Kornai pointed out the incompleteness of the classifications he developed. Nevertheless, one thing is clear – how an economic system or subsystem works depends on two factors: on the structure of information flows, and on how the organisation reacts to the information it receives. The latter is dealt with shortly, but first let us address the first issue, and consider to what extent the scheme proposed in *Anti-equilibrium* for analysing the structure of information flows can be useful in analysing the economy.

Undoubtedly, it is incredibly important just to emphasise the role played by information flows in the management of a given system, or economic subsystem, and to put these complex relations into a single scheme (even if it would be incomplete). However, the question arises – if the operation of the economy depends on what the structure of information flows is, then what does this structure depend on? Why do organisations emit information to other organisations in this form and not in another? Why do some simply send orders, while others send complex information about the relation between punishment and reward? How is this relation sometimes determined? Lastly, how does one know which organisations are to be linked to each other by specific flows of information? Unfortunately, the answers to these questions will not be found in *Anti-equilibrium*, as Kornai treats the structure of information flows as a given. This answer could only be given by considering economic institutions, and the lack of such a treatment of the problem is a significant shortcoming.

5. Response Functions

Next, it should be examined how the operation of the economy is described at the level of the organisations that issue and receive information – this is done by means of the response function of units. In simple terms, it can be said that the response function shows the relation between the vector of inflows and the vector of outflows of an economic unit. Inflows and outflows should be understood as flows of information and goods respectively entering the unit or being transferred by the unit to other units.

The arguments and value of the response function of the control units are exclusively vectors of information flows. In contrast, the information flows reaching the real units are issued exclusively by the control units, which means that the real units are always directed by the control units and never by other real units. Since the units are connected by the complex network of information described above, consequently the operation of the economic system as a whole can be determined by knowing the response functions of the economic units (and therefore the organisations).

Kornai also proposed a slightly different approach to the analysis of organisational behaviour. In chapter 9 he stated that the assumption that an organisation has a response function is equivalent to that organisation having a decision algorithm, i.e. "the ensemble of procedural rules which a control unit of a certain organisation applies [...] to arrive to final decision based on the information [...] and received in the course of decision preparation" (Kornai, 1971, p. 115).

In order to fully illustrate the specifics of his method, Kornai compared it with the key assumption of GET, about an organisation making decisions on the basis of preference ordering. In doing so, he extended the application of the concept of preferences so that it can also be applied to cases of organisations that produce. Kornai also made a thorough critique (let us omit here fairly standard arguments), of the claim that in most cases organisations have orderings of alternatives that meet all the requirements of GET. His critique, however, went further and addressed the very principle of explanation used in the GET framework, reconstructing it as follows: trying to explain decisions (why such and not such), and in order to do so we refer to the optimising behaviour of the organisation (preference ordering),

but in order to get some result we have to refer to external factors influencing the decisions, schematically described as:

explanatory factors → preference ordering → decision.

Only in a few cases, in his view (as already said), can the existence of a 'good' ordering of preferences be reasonably assumed, but more than that, according to Kornai, it is not important at all because for "science describing reality" (to use his expression), the only important thing is the link between the 'explanatory factors' (inflows to the organisation) and the decision. Consequently, preference ordering is a 'superfluous link in the explanation of decisions'. On top of this, the assumption of the existence of this ordering is extremely unrealistic, and in principle excludes most real-world accidents from the scope of analysis. Consequently, the correct scheme is as follows:

explanatory factors → decision

and this is nothing more than a response function.

Kornai formulated his accusations as if GET (or more precisely the concept of preference, which is key within it) does not meet obvious scientific standards. It seems, however, that one is rather dealing here with the fundamental difference between the concepts of explanation assumed within GET and, on the other hand, in the pages of *Anti-equilibrum*.

6. Methodological Defect

The GET explanatory scheme (as GET is understood by Kornai) is a scheme for explaining by reference to a general law. This has long been used in science, and was first put forward by Hempel and Oppeheim (Hempel and Oppenheim, 1948). It has been the subject of considerable criticism, in particular in the so-called symmetry thesis (Blaug, 1992), and criticisms of the applicability of the model in the social sciences (Hands, 1991). However, it seems to demonstrate an important aspect of scientific explanation: in economics, according to this scheme, explanation consists in deducing statements describing an economic phenomenon from assumed general hypotheses about human behaviour, with a number of auxiliary assumptions.

Indeed, the GET explanatory scheme presented by Kornai is distorted, since what he calls explanatory factors and decision together constitute the phenomenon being explained; the ordering of preferences, and the assumption of maximisation (utility, profit etc...) were used to explain it. For example, suppose we have observed that an increase in price causes a decrease in demand (leaving aside whether this claim is true), and this is a fact that we try to explain by referring to the utility maximisation hypothesis, whereas Kornai's explanatory scheme is quite different. A related approach in the social sciences it is probably behaviourism, which involves only two elements: observable factors in the environment, and also, observable behaviour as responses to these factors. For Kornai, description and explanation are synonymous – to explain is to point to causes. In contrast, from the point of view of GET methodology, this is a kind of 'explanation without explanation'.

Perhaps the problem is best seen in a certain understatement that exists in the passage in which Kornai refers to his methodology, to quote (underlined by the author): "the most essential axiom of the GE school is that every organisation of the system has a preference ordering. The axiom of the general model proposed here is less restrictive: the behaviour of every organisation of the economic system can be described by a response function" (Kornai, 1971, p. 57).

In line with what Kornai himself claimed about the concept of preferences, this sentence could be rephrased as follows: "the most fundamental axiom of the general equilibrium school is that the behaviour of economic organisations can be described by response functions, which are derived from the ordering of preferences. In the general model proposed here, it is an axiom that the behaviour of

each organisation of the economic system can be described by a response function." Here the question arises: from what would response functions be derived in Kornai's case?

This is certainly a far cry from the pattern that is prevalent in what is called the neoclassical paradigm. If we were to reverse Kornai's argument, and reconstruct his view from the point of view of the neoclassical paradigm, the fundamental issue is the meaning of the word 'why'? From this point of view, 'to explain why' does not mean 'to formulate a response function' but to answer the question of why is the response function one way and not another. A response function describes facts and facts are explained, while a description of facts and their generalisation does not constitute an explanation. Consequently, Kornai's scheme does not allow interesting questions to be posed (Hahn, 1973). To give an example: Kornai, observing a market for a homogeneous good in which there are many producers and in which there is perfect price information (specifying the most important auxiliary assumptions), noted that each producer could at most generalise the following theorem "if the price increases then production increases" and then add that "the explanation for the increase in production is a higher price". Meanwhile, the interesting questions are: why does production increase when the price increases? Why does the price rise?

An analogy can be made with the analysis of socialist 'enterprises'. These have often behaved strangely. Imagine the following response (under analogous assumptions as before) that if the price increases then production decreases, to which the following comment can be added that the explanation for the decrease in production is the higher price.. The question of why this is so is completely ignored.

In truth, Kornai's strictly behaviourist interpretation is not necessarily entirely correct, despite the 'explanatory' scheme he so clearly and explicitly proposed. Indeed, it is possible to interpret *Anti-equilibrium* in such a way that response functions are not mere generalisations of observed relations, but rather that they are derived from decision-making algorithms. In other words, one can argue that Kornai was introducing his own 'superfluous link' instead of the superfluous link of GET. However, he was not proposing to make general assumptions about these decision-making algorithms (equivalent to, for example, the assumption of a diminishing marginal rate of substitution), but rather postulating an empirical study of the actual algorithms. Hence, from the point of view of the argument presented here, this changes nothing – in any case, Kornai remained in the same paradigm of 'explanation without explanation', and proposed replacing general hypotheses with an inductive generalisation of facts, which results in incredibly complex descriptions of the relations between phenomena instead of a knowledge of the mechanisms.

To summarise this critique of 'Anti-equilibrium', two more remarks can be added. Firstly, it is not the purpose of this paper to settle great methodological disputes, but the use of a methodology allows one to at least raise interesting questions is important. It is not necessarily a question of answering them, but of simply establishing the existence of a problem, and the methodology proposed by Kornai hardly serves this purpose. Secondly, however, it cannot be disputed that the study of response functions treated as a research project (rather than as a means of producing theory) can be very fruitful. After all, sometimes one does not really know what is happening in reality, and collecting and generalising facts is important in itself. From this point of view, Kornai's scheme in its richness, and his analytical precision, was very useful. A perfect example of the use of the response function concept in Poland was the Wakar School, and its research on the behaviour of enterprises in a planned economy (Beksiak et al., 1981).

7. Conclusion

Kornai argued against the neoclassical school not only by showing that actual economic systems are 'multi-level', but also attacked the statics of GET (Holub, 1977) as well as the utility of the equilibrium concept itself (Keen, 2018). Leaving aside these polemics not discussed here, certain features of the description scheme proposed in Anti-equilibrium, can be very useful. This is because it allows to

characterise economies without assuming that they are a single-level monolith, and captures the various types of relations that can occur between their agents.

However, there are also significant weaknesses:

- It does not answer the question of where information flows come from (no analysis of institutions).
- In Kornai's work, the difference between actors in the market and those operating within the state sector is blurred. He is admittedly aware of this difference (albeit rather on the scale of entire economic systems), but because he is more focused on developing a general theory, thus, unintentionally he probably downplays the difference between market interference and state control.
- The proposed explanatory scheme does not allow interesting questions to be posed.

This last point seems to be crucial. For by examining modern economies using Kornai's method, one would only obtain a description, expressed in precise mathematical language, of 'interventionist chaos' as Hayek called it (Hayek, 2018). Meanwhile, it is not impossible that this chaos is illusive and governed by rules we do not know. There are, of course, partial answers provided by public sector economics, new institutional economics or mechanism design theory, but nevertheless no general theory in economics as imagined by Kornai.

References

Beksiak, J., Buczkowski, L., Czarniawska, B., Misiąg, F., Rębacz, H., and Wawrzyniak, B. (1981). *Zarządzanie przedsiębiorstwami uczestnikami rynku dóbr konsumpcyjnych* (t. I i II). Państwowe Wydawnictwo Naukowe.

Blaug, M. (1992). *The Methodology of Economics or How Economists Explain*. Cambridge University Press.

Hahn, F. H. (1973). The Winter of Our Discontent. *Economica*, *40*(159), 322-330.

Hands, D. W. (1991). Popper, the Rationality Principle and Economic Explanation. In G. K. Shaw (Ed.), *Economics, Culture and Education: Essays in Honour of Mark Blaug*. Edward Elgar.

Hayek, F. (2018). *Indywidualizm i porządek ekonomiczny*. Aletheia.

Hempel, C. G., and Oppenheim, P. (1948). Studies in the Logic of Explanation. *Philosophy of Science, 15*(2), 135-175.

Holub, H. W. (1977). Some Remarks on a Controversy Between J. Kornai and F. H. Hahn. *De Economist*, *125*(3), 393-403.

Keen, S. (2018). Kornai and Anti-equilibrium. *Acta Oeconomica*, *68*(S), 53-72.

Kornai, J. (1971). *Anti-equilibrium. On Economic Systems Theory and the Task of Research*. Norh-Holland Publishing Company.

Kornai, J. (2008). *Siła idei, zapiski z intelektualnej podróży*. Wydawnictwo Naukowe Scholar.

Vahabi, M. (2018). Janos Kornai and General Equilibrium Theory. *Acta Oeconomica*, *68*(*S*), 27-52.

Metodologiczne uwagi na temat *Anti-equilibrium* Janosa Kornaia

Streszczenie: Przedmiotem artykułu jest koncepcja J. Kornaia, zawarta w *Anti-equilibrium*. Celem pracy jest przedstawienie krytycznej analizy tej koncepcji. Analiza ta skupia się na aspekcie metodologicznym *Anti-equilibrium*, a mianowicie na koncepcji wyjaśniania przyjętej przez węgierskiego ekonomistę. Zastosowaną metodą badawczą jest analiza tekstu. Wynik tej analizy pozwala – jak się wydaje – ujrzeć istotny defekt metodologiczny *Anti-equilibrium*. Tezą niniejszego artykułu jest stwierdzenie, że defekt ten nie pozwalał traktować propozycji Kornaia jako równoważnego konkurenta dla ekonomii neoklasycznej.

Słowa kluczowe: teoria równowagi ogólnej, ekonomia neoklasyczna, metodologia ekonomii, gospodarki centralnie planowane.