

## Seven Theses for a Theory of Realist Economics (1)

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**Part I: Theses One to Four**  
**Part II: Theses Five to Seven**

Jacques SAPIR

The issue of realism has been central to the PAE movement from its beginning. As I have previously stated in this journal and elsewhere, for me realism is not the opposition between a "factual" world and a "theoretical" one, between reality and abstraction. Instead for me realism is both a methodological stance and the definition of a theoretical research program. Realism however can give rise to different interpretations. Uskali Mäki has made an important distinction between world realism and truth realism.(2) This distinction nevertheless raises the issue of what we understand as being the "real world", and there is here a kind of fast-lane to positivism. I agree with Tony Lawson's distinction between events and processes.(3) A process, a notion central to the works of Marx and Keynes, (4) is understood here not as a sequence of events but as "...*the genesis, reproduction and decline of some structural mechanism or thing, the formation, reformation and decay of some entity in time*".(5) This realism is completely different from empirical realism, which takes for granted the notion that any human agent can have a direct, non-mediated access to reality.

‘Realism’ as I use the word is both procedural and subjectivist. Subjectivism does not mean that human subjectivity is the only possible reality, a fallacy commonly found in some post-modern authors, but that subjective views of reality, as far as they shape human decisions, are part of reality. Realism will then define methodological constraints for economists. That does not mean that economics must have a specific methodology, which is the position of mainstream economists defending Friedman's instrumentalism, but rather that the methodological requirements for social science can have distinct applications for economics, with specific methodological rules for conducting enquiries or for story-telling (6) Elsewhere I have described what such applications in the methodology of economics could be.(7) Realist economics does not bear kindly theoretical tinkering or *ad-hoc* arguments. There are, as I have explained before in this journal, limits to pluralism. (8) A coherent research program needs to be developed for a realist economics. To this end I offer the following seven theoretical theses.

***Thesis 1: The central issue in economics is the co-ordination of decisions and interactions generated by decentralised, heterogeneous and interdependent agents whose decision-making abilities are constrained by limited cognitive capacities.***

In the real world, in the theoretical sense of this word, decision-making is done in a decentralised way. Not to acknowledge this fact is to reduce human agents to the status of mere parts of a giant machine, the issue then being who is the power behind such a machine, God Almighty, the market auctioneer (pace Walras), the Party general secretary or the mainstream economist himself.

But human agents are not only decentralised, they also are heterogeneous. Not to acknowledge heterogeneity, as when one assumes identical decision-making patterns and initial positions or a single commonly shared rationality principle, transforms the community of human agents' into a world of clones. If this were really the case there would be no sense in talking about decentralisation even in a politically free society.

The decentralisation principle is then largely grounded on the refutation of the possibility of a single

rationality principle which could be shared by all agents, everywhere, always and under every possible condition. Daniel Kahneman and his colleagues, the late Amos Tversky especially but also Richard Thaler, Paul Slovic and Sarah Lichtenstein to name just a few, have made this refutation.(9) The reluctance of mainstream economists to acknowledge these scientific results - a paradoxical position for a group professing fondness for the Popperian legacy - betrays their unwillingness to accept true decentralisation, whatever they may say about possible different initial human and material resources allocations to individuals. Heterogeneity is a necessary concept for understanding decentralisation. Ultimately heterogeneity means not just that situations can be different and thus also the social positions from where decisions are made. This is heterogeneity in its descriptive sense. In a more analytical sense heterogeneity derives from the fact that patterns of decision-making, models of rationality - here to be understood as the simple fact of having a reason for doing something - are different. Heterogeneity is not exogenous to the decision-making process, something that a dedicated policy could eradicate, but instead something at the very heart of this process.

The interdependency of decentralised and heterogeneous agents must be understood. The standard economics theoretical tradition emphasises the Robinson Crusoe metaphor, negating the interdependency issue, and envisions the social process from the point of view of a completely isolated individual. Against this tradition, realist economists conscientiously put the issue of possible unintentional effects of individual decisions on other agents at the very centre of economic activity and as part of social life. Here they reclaim both Hayek's legacy, at least the one coming from *The Constitution of Liberty*,(10) and the Durkheimian one with its concept of *social density*.(11) This last, that the web of intentional and unintentional relations and the perceptions related to them is the real place where decisions are made, was developed by Emile Durkheim in his seminal work on the social impact of the division of labour. (12)

To jointly acknowledge decentralisation and interdependency implies a switch from the allocation paradigm to the co-ordination one. Co-ordination can be achieved through intentional processes (networks and hierarchies) as well as through unintentional ones (markets). But whatever the process one thinks fits best at a given time and for a given problem, decentralisation is the central issue.

Anti-realism as a methodological strategy supported by mainstream economists does not stop with rejection of heterogeneity and/or interdependency. Perfect information, as in the initial Walrasian model or as in the rational expectations theory, is part of such a strategy. Refutation of the perfect information assumption can be epistemic. Simon and de Groot have shown that even if a perfect information structure could exist, our cognitive capacities preclude us from computing in a time short enough for this structure to be of actual use for our decision-making process.(13) But refuting the perfect information assumption can also be ontological. Perfect information could be an unreachable goal because the real world is too complex to be understood - the classical Hayekian understanding of uncertainty - or because our own attempts to gather more information are generating endogenous modifications of the information structure (Stiglitz, Akerlof). Uncertainty is then not an exogenous addition but is endogenously generated. This understanding of uncertainty puts the asymmetrical information school on the right side of the methodological realism border when compared to the information search school (Stigler).

One has to add that if we agree with the fact that there can not be a single and common rationality principle then the rational expectations theory is devoid of any logical basis. Whatever the reason for endogenous uncertainty, this assumption is another defining characteristic of mainstream or non-realist economics. It is so as to deny uncertainty that neo-classical economics pretends to give to profit and price a natural law dimension. (14)

A common attribute of varieties of non-realist economics, whether because they refuse to acknowledge heterogeneity or interdependency or endogenous uncertainty, is their denial of the relevance of time and money. Realist economics, on the other hand, stresses time and money relevance. Time is relevant as a causal factor, (15) something which was understood quite early by Gunnar Myrdal who pointed to the relevance of the ex-ante / ex-post divide in the perceptions of economic agents, (16) and by the classical institutionalist school with its first mover / second mover paradigm. (17) Time is also relevant, as a delay between decision and effects or between a demand

and a supply response, as clearly understood by Mordecai Ezeckiel a long time ago.(18)

Money is a necessary institution for co-ordination. It generates the illusion of homogeneity that agents need to make complex decisions on the basis of their limited cognitive capabilities and because, by allowing for the separation between income formation and income utilisation, money makes possible a better use of time.

***Thesis 2: If money is a necessity in an uncertain world, money also introduces a specific form of uncertainty, casting doubts on the market's ability to efficiently process information.***

In a world devoid of uncertainty money would not matter. But money gives to every agent in an uncertain world the ability to shelter himself in liquidity. Liquidity in turn allows every agent to defect from the long and continuous chain of interdependencies generated by the division of labour. This very possibility of defection introduces a new strategic uncertainty which is at the heart of economic decision-making in money-based economic systems. Actually there is a deep interaction between uncertainty and the flight to liquidity, which in turn generates this strategic uncertainty. This was perfectly described years ago by G.L.S. Shackle:

*"When knowledge seems especially elusive, we desire money rather than specialised, vulnerable assets. We sell the assets, their prices fall and it becomes no longer worthwhile to produce them, no longer worthwhile to invest, to give employment. Had Keynes attended to Cantillon, he could have freed himself from the proposition that an employer will always offer a wage equal to marginal product of value of his body of employed people. For since he must employ people first and sell their product later, he cannot know for sure what their marginal product is going to be".(19)*

Hyman Minsky has shown how financial innovation, as burgeoned during the second half of the XXth century, could be deeply destabilising.(20) From Marx to Keynes, realist economists have analysed how the flight to liquidity should put crisis - not equilibrium - at the centre of economic thinking. Crisis is the permanent horizon of a capitalist economy because either liquidity is too much in demand or is not wanted at all. The specific uncertainty generated by liquidity pushes economic systems toward under-investment and under-employment. This uncertainty can not be managed by economic computation and can be called radical uncertainty.

Here we are facing the first paradox of money. As an institution money pretends to solve the heterogeneity problem by setting monetary prices as a common norm for decision-making, something which makes the deepening of the division of labour possible. However by doing so money generates the radical uncertainty which constrains the expansion of the division of labour.

A second paradox of money is that as an institution it would seem to unify time through interest rates and its function as a reserve of value. But money, through its liquidity function, contributes greatly to making the future even more uncertain.

The twin paradoxes of money stress the fact that if monetary prices are a necessary fiction, from the realist economics point of view, they nonetheless are a fiction. That was precisely what Max Weber tried to show when explaining that monetary prices are necessary in a decentralised economy but are not the result of demand and supply equilibrium - as pretends capitalist spontaneous collective thinking. Monetary prices actually reflect the balance of power between social or individual forces and interests.(21) Keynes, in one of his first works, wrote something very similar. He explained that inflation and deflation translated into the monetary world social conflicts opposing large, structured social groups.(22)

However if monetary prices are a necessary fiction they also are an uncompleted one.(23) They are unable to carry the whole range of information needed for decision-making. Because we need information which can not be conveyed through monetary prices and which belong then to different information spaces, our decisions are situated and embedded in multidimensional worlds. One consequence is that the transitivity of individual preferences is broken in a systematic way.(24) Then the Allais' Paradox holds true,(25) and we can forget the *subjective expected utility theory* and every device invented by mainstream economics to transform the static Walrasian world into a dynamic one

and to cope with uncertainty (even in a Bayesian form). A second consequence, as demonstrated by Grossman and Stiglitz, is that in such a situation, where prices do not convey all needed information, competitive markets are not informational efficient.(26)

***Thesis 3: Time and money are at the very heart of the interchange between the individual and collective levels.***

Time matters, inter-alia, because of the time constraint: the more we wait before making a decision the more we lose even if our decision is the perfect one. However the time constraint has not the same meaning for individuals and groups. Our decision tempo is largely shaped by our more or less deep insertion into collective groups, from the family to the enterprise, including social and political organisations. In turn, the way collective groups are institutionalised shapes also their impact on our individual use of time and our sensibility to the time constraint.

The power that money gives, particularly as liquidity, is not used in a vacuum of representations. Kahneman and his colleagues have demonstrated that our individual preferences are shaped, or more precisely "framed" by collective contexts.(27) But the way I use my liquidity power could affect decisively some collective groups to which I belong, even if I have no idea of this fact. A bank-run, even if induced by misguided collective representations, is a movement of thousands of individuals who try to protect their savings but, by doing so, usually destroy most of the economic context supporting collective groups (enterprises) from where their income is generated.

Any attempt to seriously make time and money relevant, from a theoretical point of view, amounts to repudiating methodological individualism. But because time and money relevance comes from interdependency and from social density, we also have to repudiate the idea of a single dominating collective context. If realist economics embraces methodological holism it is a non-deterministic holism.

***Thesis 4: Any attempt to negate the theoretical status of time and money leads to non-scientific assumptions and transforms the economist himself into a producer of ideology.***

Being serious about time and money places economics in the very middle of the social sciences. If statistical regularities and stabilities are to be found, they are not the products of intemporal laws but of social systems of institutions. The stability of these systems is itself a local and temporary phenomenon. On the other hand if one wants to ground economics on laws similar to ones found in natural sciences, in physics or mechanics, one has to negate time and money relevance. Such a strategy is logically coherent if and only if one negates either decentralisation or interdependency. Both are radical retreats from realism.

Here we have one of the most fanciful paradoxes of mainstream economics. To reject realism for axiomatics, mainstream thinkers have to invoke ergodicity.(28) But to pretend that economic processes could be in any sense a kind of ergodic process, one has to demonstrate that they are subject to a determination which is non-human (thereby violating the initial assumption of decentralised decision-making) and non-social. Obviously the standard theory of individual preferences and its conclusion, the closed and universal model of rationality, fit nicely here.

Traditional assumptions about individual preferences (transitivity, continuity, reflexivity, independence and time monotony) are then just not ad-hoc assumptions but the logical core for any instrumentalist methodology grounded on preference utilitarianism.(29) They provide the stable, non-social, reference point needed to pretend that observable local economic stabilities are like the exposed tips of yet unknown "natural" laws of economics.

It happens to be the case, however, that all these axioms can be tested and when they are they are invalidated.(30) Facing such results most mainstream thinkers pretend they are irrelevant. They dismiss the very idea of confronting an economic theory with real life experiments.(31) By doing so they fail to understand that they can claim legitimacy for the axiomatic approach if and only if they

can find empirical grounds for their ergodic assumption. What psychology has done is no less than to destroy the only substantial argument for ergodicity, that is the universality and stability of the neoclassical model of rationality.

The willingness to integrate into economic theory the findings of applied psychology versus the refusal to do so is the true borderline between economics as a scientific activity and economics as production of ideology. The defence of axiomatism clearly no longer belongs to any kind of scientific approach to economic phenomenon but instead is a form of religious thinking. In contrast to the we-do-not-want-to-know approach, George Akerlof has succeeded in integrating recent psychology results to a theory of inflation, which is clearly Keynesian.(32) Akerlof's writings are living proof that Kahneman and Tversky works can be solid ground for Keynesian assumptions, particularly when it comes to money and time.(33)

***Thesis 5: To regard money as the one central institution in a market economy fails to break free from the neo-classical framework. Emphasizing only money could be as theoretically misleading as ignoring money.***

It is clear that understanding money's relevance is a cornerstone of economic theory. Yet this position can evolve into a mistaken one no less dangerous than the neo-classical denial of money's relevance: monetary essentialism. It is the path taken by two French authors with whom otherwise I generally agree, Michel Aglietta and André Orléan, the latter a well-known and long-standing PAE contributor. Because they claim to have developed a workable alternative to the money denial strategy favoured by neo-classical and some Marxist authors alike (34), an alternative giving monetary policy and Central Bank independence a strong legitimacy, monetary essentialism is worth serious investigation. As a matter of fact, if one could demonstrate that money is as pivotal as monetary essentialism pretends it is, then one would have a pretty good argument for asserting the superiority of monetary authorities over political ones.

Monetary essentialism moves beyond acknowledging money relevance against the neo-classical cum monetarist tradition to the point of proclaiming money the central, pivotal, market economy institution (35). It acknowledges the fact there is a deeply entrenched violence in monetary relations which cannot be reduced to just an allocative process. Monetary essentialism is innovative in its aim of linking economics to anthropology and it is grounded on what Aglietta and Orléan call the Fundamental Girardian Theorem from the French catholic philosopher and anthropologist René Girard (36).

Years ago Girard developed an anthropological theory of violence that he opposes to one emphasizing the social roots of conflicts. His theory is grounded on the genesis of violence erupting from an undifferentiated mob driven by a demand for wealth. This word resonates in the economist's ears. However in Girard's works wealth is an all-encompassing notion running from material goods and money to social status and parental love. Because it is such a global, all encompassing notion, it makes it possible to conceive of a universe of one-dimensional choices where "wealth" is the measure of everything. This conception resembles the neoclassical concept of price which is supposed to carry all needed information. In a Girardian world an economist would be, to paraphrase Oscar Wilde, a cynic who knows the wealth of everything and the value of nothing. In this universe of one-dimensional choices, individual preference transitivity could then be logically demonstrated and the neoclassical theory of preference and rationality given a new rationale. One could then forget that in the real world, and specifically when money is at stake, it has been demonstrated that violations of transitivity are systematic (37).

It is, however, perfectly clear that the Girardian genesis of violence is no less unrealistic and anti-social than the Robinson Crusoe metaphor that Austrian marginalists were so fond of. All the perfumes of Girardian wealth could not sweeten the neo-classical price. Aglietta and Orléan run into a serious contradiction. Admirably they profess their willingness to break with the neo-classical logic. However as they pretend to reject the view of a fully determined world - a position I completely share with them - they fall into another fallacy, the one of pretending that there are no so central rules but

money. To do so they have to stick with violence as understood by René Girard (38). Then they have to pretend that there is no stable social relation between agents, that they are un-socialised social actors (39). This is one dimension of the neoclassical fallacy. The so-called Fundamental Girardian Theorem is supposed to say that unanimity could be the result of a spontaneous convergence, hence the undifferentiated demand for wealth could give birth to a global social agreement. However Orléan remarks with some ingenuity that if we introduce one differentiation level in the primitive wealth-driven population then unanimity is no longer a spontaneous result (40). Change here unanimity for equilibrium and you would have an exact restatement of the Grossman-Stiglitz paradox (41). The Girardian Theorem's sensitiveness to heterogeneity is another proof that it is a next of a kin to the neo-classical equilibrium and Girardian wealth to Walrasian price. Anyone here cruel enough into introduce in the picture the endowment effect and the framing effect would lead the Girardian Theorem to its self-destruction and monetary essentialism to its methodological collapse.

What is problematical with monetary essentialism is not its emphasis on violence or its attempt to link economics to anthropology. The problem lies with the anti-social anthropology that it mobilises, a theory leading not to a definitive break with neo-classical orthodoxy but to the reverse, a return toward typical neoclassical simplifications and methodological unrealism.

***Thesis 6: The idea that there is one pivotal institution for a market economy is devoid of meaning. Institutions cannot be assessed in isolation. What matter are institutional systems or precisely defined hierarchical clusters of institutions.***

If money cannot be seen as the central institution of a market economy, then maybe property rights could be seen as an alternative (42). After all, without property rights it is difficult to understand market transactions. However when one discusses property rights it is frequently private property which is at stake. But, as explained years ago by Richard Nelson, private property does not work as an operational concept enabling us to delineate differences between forms of social organisation (43). To oppose private to collective ownership is to run quickly into an interesting, if frequently forgotten, paradox.

If property rights are to be defined inside a society, then we have more than one economic agent to think about. Hence, what agent (a) is doing could affect in an unintentional way the wealth and position of agent (b). The latter could sue the former who then would think twice before doing anything if the penalty were significant by comparison to the expected result from his own action. This is nothing more than a restatement of the Shackle Paradox, explaining that decentralised decision-making gives birth to uncertainty and that uncertainty could prevent decentralised agents from making decisions (44). To prevent unintentional effects from paralysing the whole social life, every society has developed a different set of rules for actually constraining our individual freedom to use and abuse our properties. Rules, without which no individual action is possible in a society, are nothing less than collective property rights. Hence, individual property rights can't exist without collective ones. And if to avoid this problem we attempt to define individual property rights from the Robinson Crusoe metaphor, then we define something that does not exist. Before the landing of Friday, Robinson, alone on his island, owns everything that is nothing. Property rights here have no meaning.

Private and collective property rights can't be opposed and are actually closely integrated. But, if we have to think about collective ownership to understand private ownership then it is mandatory to think about the way human collectivities are organised. Political issues (how legitimacy and legality interact) matter then as much as property rights. They cannot be substituted for money as the pivotal market economy institution, and I hope that this discussion had made a case against the whole idea of defining any "pivotal" institution.

Let us now return to the problem of money. We have to reckon with the fact that barter trade can exist simultaneously with money, meaning that there is more to be considered than just the fact that money is a more effective and rational transaction medium than barter (45). The development of barter trade in Russia from 1993 to 1998, a period when inflation was actually decelerating (barter was at its highest point early 1998 when inflation was down to 12% a year), raises an important theoretical

issue. The use of money receded not because the value of money was disappearing as happens during a hyperinflation crisis (remember Weimar and the wheelbarrows full of banknotes) but because institutions, without which money cannot be used, were missing (46). The development of barter trade in Russia was the result of a lack of financial institutions, the result of the liberal monetary policy implemented from October 1993 onwards (47). It was also the result of a lack of trust (48) resulting from the weakening of State institutions through the particular privatisation process then implemented by Anatolyi Chubays and his US crony advisers (49). Money, as an institution, needs both technical institutions (mostly in the finance sector) and political ones to support it and make it effective. In turn, after the August 1998 crash, barter receded not because of any hard monetary policy (actually inflation rose) but because Primakov's government worked hard to rebuild state legitimacy and institutions (50).

Money can be relevant when two specific freedoms or rights can be found in any transaction: the freedom to engage in a transaction with whom one wants and the freedom to engage when one wants. Both these freedoms do not exist for every possible transaction. Sometimes technical constraints drastically reduce the first one, so that vertical integration, that is the substitution of a hierarchy for a market, is then the logical evolution. And social constraints can reduce both the first and the second freedoms. In any case, these freedoms or rights imply a whole set of institutions which, in turn, defines the place and form money can take at a given time in a given market economy. The central issue is then not the functionality of a single institution but how institutions in a given set can be mutually supportive. In the end it is the coherence level achieved by the institutional system that is the analytical key of statistical stabilities and medium-term trends. When money is at stake, it is the coherence (or the lack of) between managing institutions (central bank, financial markets, banking system, international financial institutions) and related ones (public regulations, labour-management relations, balance of property rights between individual and collective ownership, institutional forms of the social protection system, regulation of human, material and financial trans-border flows) which really matters. The coherence issue, be it static or dynamic, is then the central one for realist economics.

***Thesis 7: The embededness of any institutional system in a given territory, itself a social and historical construction, is an omission of mainstream economics that is hidden behind the denial of time and money relevance.***

Time and money have led us to institutions. Not just the usual discussion about institution functionality but to the understanding that an institution cannot be considered in isolation. Institutional systems, coherent and hierarchal sets of institutions, are the main issue. Rejecting the functionalist fallacy about institutions means also rejecting any functionalist understanding of the birth of institutions (51). The Hayekian view of spontaneous selection raises many methodological and theoretical problems. Among them the two most vexing are:

- (a) the Hayekian selection process introduces a methodological holism dimension into an otherwise individualist theory (institutions are selected through groups) and
- (b) that without assuming temporal monotony of individual preferences it is impossible to prove that selection has not been accidental unless one assumes a stationary universe.

Up to now the only realist theory of institution generation has been François Guizot's. Social conflicts of opposing human groups have been the historical process of institutional development and selection (52). The dynamic of these conflicts develops in the space of sovereignty, which is then shaped by the development of conflicts. Such a process makes the distinction between rules and the principles on which rules are founded a pervasive necessity.

Social density implies the necessity of rules, as individual agents are unable to forecast all possible unintentional effects of their own actions. This makes them unable to write complete and perfect contracts. Contract incompleteness and imperfection make rules a necessity. Institutions generate rules but individual institutions are incomplete as shown above. To make institutional

systems work in a coherent way, rules of a greater magnitude are needed. They are laws as produced by political institutions. But the human agent's inability to write complete and perfect contracts applies here too. It is then to be expected that laws are to be contested even if the process under which they have been produced has respected its own rules. Hence, the rule of Law is not enough or we have to prove that the concerned human community is perfectly homogeneous and composed only of people driven by the best set of sentiments possible (53). The emphasis put on the rule of Law, as in the British and American mainstream tradition, reveals a deep negation of the heterogeneity principle (54).

The legality of the process does not confer to a law the legitimacy it needs. Legitimacy proceeds from principles, which characterises a political community which, historically, is territorially defined. In turn one can see how the neo-classical view of a perfect information world is congruent to an understanding of institutions reduced to their functionality and to the negation of the legitimacy principle for the sake of making the rule of Law the one and only one benchmark (55).

If we agree to the fact that economics is not a natural science, and to the contrary that economic processes are embedded in social and historical construction, then the institution building process is as much political as it is economic. It cannot be understood separately from links between a given territory and a political community. Even in the globalisation age, Nation-State matters. It matters when it exists as well as when, weakened by decades of neoliberal policies, it is no more able to play its part. The difference between the way Malaysia rode the financial storm in 1998 when Indonesia sank is not just a difference between a wise and an unwise economic policy. The Malaysian state was still functional whereas the Indonesian one had been dramatically weakened. Malaysian economic and political elites were then in a position to resist the IMF policy and implement effective decisions (like the currency control) when Indonesian elites were so fragmented and deprived of legitimacy that they had to abide by IMF prescriptions with their usually catastrophic results (56).

If institutional systems cannot be understood in a dynamic way without including in the picture the way space has been shaped by centuries of social and political processes and conflicts, economics has no meaning but the one of political economy. This political economy needs to seriously address the Nation-State issue as well as the fact that every Nation-State is not fully homogeneous and that institutional differentiation can be found inside their own perimeter. Institutional differentiation inside a given Nation-State can explain why regional competitiveness is frequently different and why some regions develop faster than others do at a given time. In turn this can be understood only on the basis of acknowledging the social dimension of any institution, including given sets of markets. The development of an effective market economy ("effective" and not "efficient" because out of the neo-classical theoretical frame this word is devoid of meaning) always is the result of a given social process. Markets are socially constructed objects (57). The development of regional sciences is then a logical and necessary addition to a comprehensive research program for realist economics (58).

## Notes

(1) This paper is a translation and adaptation of one that appeared in the French journal *Alternatives Économiques* (n° 57, 2003, hors série, pp. 54-56, see also [www.alternatives-economiques.fr](http://www.alternatives-economiques.fr)) and is published here with authorisation of the journal's editorial board. The initial aim was to review assumptions developed in an earlier book, *Les trous noirs de la science économique* (Albin Michel, Paris, 2000) and to specify some details that could be of use for the PAE readership.

This book was published in the very middle of the battle following the French students appeal for more realism in the teaching of economics (spring 2000) and sold quickly, being re-printed twice before its forthcoming pocket edition, September 2003. This coincidental publishing was a pure stroke of luck. The book was written between 1995 and 1998 when I was teaching at the *Vyshaya Shkola Ekonomiki* (Higher School in Economics - Moscow). From lectures delivered in Moscow I wrote first a basic book for Russian students (*K Ekonomicheskoy teorii neodnorodnykh sistem - opyt issledovaniya decentralizovannoy ekonomiki* - Economic theory of heterogeneous systems; an essay on decentralised economies) which was published by Vyshaya Shkola Ekonomiki Press, Moscow, in 2001. At the same time I re-focused and expanded part of its content to write *Les trous noirs*, this time not as a basic book but as a critical essay on mainstream economics. This second book is not then the translation of the Russian one, although they are closely related.

I have adapted and developed here the arguments of the *Alternatives Économiques* paper for the sake of an English language readership not necessarily aware of debates currently raging in Paris.

2. U. Mäki, "How to combine rhetoric and realism in the methodology of economics" in *Economics and Philosophy*, vol.4, April 1988, pp. 353-373.

3. T. Lawson, "Realism and instrumentalism in the development of econometrics", in *Oxford Economic Papers*, vol. 41, January 1989, pp. 236-258.

4. For the latter, A.M. Carabelli, *On Keynes's Method*, Macmillan, London, 1988.

5. T. Lawson, *Economics & Reality*, Routledge, London & New York, 1997, p. 34.

6. C. Lloyd, *Explanations in Social History*, Basil Blackwell, Oxford, 1986.

7. J. Sapir, "Calculer, comparer, discuter: apologie pour une méthodologie ouverte en économie", in *Économies et Sociétés*, série F, n°36, 1/1998, pp. 77-89.

8. J. Sapir, "Realism vs. Axiomatics" in Edward Fullbrook (ed.), *The Crisis in economics*, Routledge, London & New York, 2003, pp. 58-61.

9. For a now quite old review of this literature see J. Sapir, "Théorie de la régulation, conventions, institutions et approches hétérodoxes de l'interdépendance des niveaux de décision", in A. Vinokur (ed.), *Décisions économiques*, Économica, Paris, 1998, pp. 169-215. Also: A. Tversky, "Rational Theory and Constructive Choice", in K.J. Arrow, E. Colombatto, M. Perlman et C. Schmidt (eds), *The Rational Foundations of Economic Behaviour*, Macmillan and St. Martin's Press, Basingstoke - New York, 1996, pp. 185-197.

10. F. Hayek, *The Constitution of Liberty*, University of Chicago Press, Chicago, 1960.

11. E. Durkheim, *Les règles de la méthode sociologique*, PUF, coll. Quadriges, Paris, 1999 (1937).

12. E. Durkheim, *De la division du travail social*, PUF, coll "Quadrige", Paris, 1991 (1893).

13. A. de Groot, *Thought and Choice in Chess*, Mouton, La Haye, 1965. De Groot's work has been much used by Herbert Simon. See H.A. Simon, "Theories of bounded rationality", in C.B. Radner & R. Radner (eds.), *Decision and Organization*, North Holland, Amsterdam, 1972, pp. 161-176.

14. G.L.S. Shackle, "The Origination of Choice", in I.M. Kirzner, (ed), *Subjectivism, Intelligibility*

and *Economic Understanding*, Macmillan, London, 1986, pp. 281-287.

15. M. Capek, *The Philosophical Impact of Contemporary Physics*, Van Nostrand, Princeton, 1961.  
G.P. O'Driscoll Jr. and M.J. Rizzo, *Economics of Time and Ignorance*, Basil Blackwell, Oxford, 1985, pp. 60-61.

16. G. Myrdal, *Monetary Equilibrium*, W. Hodge, London, 1939, pp. 43-44.

17. W. M. Dugger, "Transaction cost Economics and the State", in C. Pitelis, (ed.), *Transaction Costs, Markets and Hierarchies*, Basil Blackwell, Oxford, 1993, pp. 188-216.

18. M. Ezekiel, "The Cobweb Theorem", in *Quarterly Journal of Economics*, vol. LII, n°1, 1937-1938.

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