

Very Preliminary draft

Inertial Rules as Evolutionary Replicators

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This paper places the inertia-of-rules concept within the Generalized Darwinism framework. We discuss the propensity of replicators to persist over time despite the particular environment, to which it was originally suitable for, is meanwhile changed. Because of such a property, until (and sometimes beyond the time in which) the selective consequences of the environmental change intervene, the replicator survives and affects economic outcomes. The inertial rule should be meant as a tool of the economic disciplinary domain for which the validity of Generalized Darwinism is asserted. Empirical evidences are offered, which may explain different outcomes of the same rule working in different environments.

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1. Introduction.

The relation between biology and economics has always been very close relative to the concept of selection¹. Yet, what we were mostly left with is the sheer transposition of the biological framework into the socio-economic domain. Conversely, according to Winter (1987), the evolution of economics does not concern the application of an intrinsically biological framework to the different economic field. Rather, it is about the implementation of a unique and original theoretical structure both for the biological environment and for the economics or other social science domain. The prerequisite for the viability of such a paradigm is the complexity of the system which is the object of the observation. In this direction, Hodgson and Knudsen (2006) develop the Generalized Darwinism as a metatheoretical unifying framework. The attribute “generalized”, which they put beside the term “Darwinism”, shows that, “despite [...] real and severe ontological differences at the level of detail, there are also nevertheless common ontological features at an abstract level.”² In continuity with this conceptual framework, we want to show the existence of a specific quality, which may be present in the replication process, and which we call *inertia*. Moreover, the paper focuses on the

¹ The Darwin-related economic literature is endless. For a review, see (...).

² Hodgson and Knudsen (2006, p.14).

economic and social outcomes deriving from such a quality, when it is present in a specific kind of replicators, those rules-institution³ that were selected by a given environment, but lost such a quality since that environment changed.

The remainder of the paper is organized as follows. Section 2 places the category of the inertial rules into the Generalized Darwinism framework. Section 3 shows some examples of inertial rules. Section 4 concludes.

2. The Generalized Darwinism and the inertial rules.

2.1 According to the Generalized Darwinism framework, complexity is the first feature that systems belonging to different fields may share. Therefore this is precisely what allows analysts to examine the systems through the lens of the Darwinian paradigm. In all such systems, the elements absorb energy from the environment and consume its resources; it follows that the scarcity of such resources brings about a struggle for life among the elements⁴. Finally, the evolution of such systems involves the three Darwinian

³ We use here the term “institution”, according to the definition given by Dequech (2013 p. 101), meaning “socially shared rules of thought and behaviour”.

⁴ Hodgson and Knudsen (2010).

principles of variation, inheritance, and selection. Variation is the Darwinian principle that explains the variety of the single elements of the system; selection is the principle which explains why certain elements survive while others die; replication refers to the ability of elements to pass down information useful to survival. Following this framework, one can imagine that a given character (attitudes, abilities, or whatever) is transferred from a (subset of a) generation of elements of the system to the next one, depending on some mechanism of reproduction. If the inherited character increases the probability of survival and/or reproduction for the new (subset of) generation, also its probability to pass down that character to the next generation increases. Consequently, characters fostering the survival tend in turn to survive, characters hindering the survival tend to disappear. More precisely, a character fosters the survival when it somehow helps its *vehicle*. The concept of *vehicle* of characters dates from Dawkins (1988), and is equivalent to the biological concept of *phenotype*, whereas the whole of characters carried by the vehicle, named *replicator*, is the equivalent of the biological concept of *genotype*. In the generalized Darwinism framework, the pair vehicle-replicator is replaced from the pair interactor-replicator.

2.2 As mentioned already, we adopt the broad definition of institution given by Dequech (2013). This implies that we think to replicators in terms of shared rules of behaviour or

thought. The rule can be adopted and followed by a person or an organization, which are two examples of interactors, and replicated by imitation, for example. Such a rule may have, and a great number of rules have, some economic effects. These effects can be beneficial or not, both for those who follow that rule, and for the society as a whole. It is important to stress, here, that the *economic* performances of such a rule may be completely independent of its *reproductive* performance. That is to say, we could have a rule that replicates for a very long time but produces undesirable economic consequences; also, we could have rules that lead to desirable economic effects, but disappear in a very short time. The point here is that the reproductive performance of the rule is *strictly related to that specific environment which the rule has evolved for*. If that specific environment changes, the unchanged configuration of the rule could prevent it from surviving, at least in the same early configuration. In this case, if the rule in turn does not change in a way that makes it fit again for the changed environment, it could be set for extinction (passing through a reduction of its frequency in the population, maybe).

In consequence of an environmental change, a certain time is needed for the evolutionary pressure to suppress the previous or to shape a “new” institution. In fact, neither an evolutionary adaptation nor the extinction follow instantaneously the environmental change. During the time

needed by the adaptive process, the unchanged institution can reproduce itself in the previous configuration and continue to produce effects, which could be very different compared with the effects produced in an unchanged environment. Alternatively, a rule which does not react to a change in its environment, may survive in another environment (which would be a simple change *of* environment in the same previous configuration) or even survive, in the original or in another environment, in a different configuration, as a simple, abstract command, without the content that initially characterised it⁵.

We name *inertia* the rules' aptitude to survive in the same configuration, despite environmental changes, for a certain time; then, by metonymy, we call *inertial* that kind of rules-institutions whose replication proceeds, also only for a given period, despite the meanwhile mutated environment. The attribute refers to the fact that they drag themselves and produce some kind of effects even if the surrounding environment, which moulded their configuration, is no longer the same.

The theoretical foundation of the *inertia* category is in the independence of the replication mechanisms from other dynamics. Replicators could, so to speak, be completely

⁵ See subsection 3.2.

independent of the environmental dynamics, and continue to replicate until the intervened environmental changes have made impossible their further replication cycles. As this result may also occur *after one or more of these cycles*, the replicators can replicate for generations – albeit less and less numerous, maybe - and therefore for a long time⁶. This provisional coexistence of replicators on the way to disappear or change, and an already changed environment can produce outcomes different from those produced in the past. Therefore, whatever the principle that presides over the replication of a certain institution-rule, it is an internal-to-replicator mechanism that tends to replicate in an always-identical way, irrespective of meanwhile intervened environmental changes. Among other things, the introduction of this concept may help to explain those cases in which a given rule continues to survive in spite of its economic effects are no more desirable.

3. Inertial rules at work.

3.1. The amoral familism.

About sixty years ago, an American political scientist

⁶ This would not be true in the case of an environmental change, which instantaneously triggers a non-reproduction command in the replicator.

proposed the definition of “amoral familism” in order to gather the rules that were governing a little village in the South of Italy (Banfield, 1958). He carried out direct observations, used public and private data, and ran several psychological tests on the population of the village. The final results of the study noticed "the inability of the villagers to act together for their common good or, indeed, for any end transcending the immediate, material interest of the nuclear family" (p.10). The more important of those rules was *do not trust anybody who does not belong to your own family*. Its defending character hindered the exchanges, condemning to suboptimal allocations. Then, the fact that the interest was *immediate* hindered any possibility of save and accumulation, whereas the feature of *materiality* discouraged any investment in education. Banfield underlined that other territories in the South of Italy were suffering similar economic conditions. Nowadays, a relevant backwardness of the South of Italy remains, if compared with the rest of the Country. The results of that study were criticized variously and for a long time, and it is probably outdated in many aspects. Nonetheless, it remains a good example of a set of rules (of behaviour and thought) entirely aimed at the maximization of the interest of the nuclear family. It is neither the *egoistic* maximization of the individual interest, as in the mainstream economic theory, nor an *altruistic* maximization of the social interest. It is an intermediate dimension, which only ensured the strict

survival of the genetic of the family (remember that the family is nuclear). The point here is that such rules did not arise by chance but, evolutionarily speaking, they arose survived “in order to” help their respective interactors to survive in extremely hard conditions of work, health and life: poverty, high mortality rate in the adult population, extractive elites, long journeys to go to work. These conditions prevented both *wasting* time in the children education and being optimistic enough to save money for the future. Nonetheless, such defending rules have been crucial in that context. According to our hypothesis, these rules-replicators have arisen and survived in order to make more likely the survival of the population, but have continued to be passed down from interactor to interactor, even when the environment they dealt with has disappeared. Because of their inertial character, the reactivity of such rules to a meanwhile changed environment could not have been quick, and this could explain the permanence of comparable rules (which produce no more desirable economic outcomes) in the current South of Italy.

3.2. Old rules under false pretences.

A particular way by which inertia may appear is the permanence of the empty command of a previous rule. The

difference with both the previous example, and the related way in which inertia shows itself, is in the fact that here the selection has already accomplished its work, and has done away entirely with *the way of being* of the rule. It survives as a mere abstract scheme, completely oblivious of its previous role, conveying completely different meaning and contents. So, its new and different effects do not derive (anymore) from the temporary survival that selection grants the rule before eventually doing away with it, as in the previous case, but derive from the new life that the same scheme can produce in the new way of being. The rules surviving, despite changes in the environment that had originated them, often find shelter in a completely different set of rules, which is its new way of being, in which the original abstract scheme may find a new fertile niche. Living in a completely different context, and being empty of their original role, these rules may consequently generate radically different effects (included economic outcomes).

Consider the habit that recommends to a man of forerunning the woman he is going with, while entering a club or a restaurant. Such a rule had a material utility in the sphere (set) of rules concerning the personal safety, as it was aimed to verify that the place was not dangerous. Nowadays, that possibility is no longer realistic (or, at least, it is not necessary to verify it directly), but the mere scheme of the rule survives in the different context of the etiquette, so

arising themselves in a new way of being.

A specific set in which the new life of old schemes may appear is represented by superstitions. They, indeed, are often nothing but rules that have lost their previous purpose, survive under false pretences, and generate completely new outcomes. Consider the example of a black cat that goes across your pathway. Many people think that such an event brings bad luck, and could decide to change their own pathway for this reason (so suffering, for example, the costs of a delay). In such a case, people are obeying to the empty simulacrum of an old rule, which however had had a practical relevance in a different and previous context. The context was one in which people travelled on carriages, and a black cat on the road with insufficient lighting, could get in the way of the horse, thus causing serious accidents. In that sense, it is certainly true that a black cat crossing the road could really bring bad luck! Until the rule was working in the original context, holding to it (staying away from black cats) could save one's life. In its new superstitious course, it induces only a waste of time.

The examples presented in this section have shown the case of rules that were previously causing useful effects, and later become useless or counter-productive. However, there is no reason not to imagine a rule proceeding in reverse order, i.e., a survivor rule that induces advantages larger than before.

4. Conclusions

In this paper we placed the notion of inertial rules within the framework of Generalized Darwinism. Because of inertia, the life of rules may last longer than the environmental characteristics which selected them. When the selected characteristics of the rules allow their interactors to survive in certain conditions, the permanence of such rules beyond the permanence of those conditions could produce negative effects, as in the empirical case we proposed. More generally, the permanence of rules beyond an environmental change may produce effects different than those produced before the change was happened. Several other historical examples, and a more in-depth theoretical discourse, are needed to sustain the hypothesis of the inertia as a characteristic of replicators, and of inertial rules as category explaining different economic paths of societies whose members have adopted different rules.

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