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Following artifacts

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FOLLOWING ARTIFACTS

BY

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CENTER FOR THE
HISTORY OF POLITICAL ECONOMY
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Following Artifacts*

The essay discusses the historiographical strategy of “following artifacts” in the history of contemporary economics. Following models as artifacts means (1) to follow the shifts and changes in their form and meaning; (2) to follow the ideas, theories, fictions, and imaginary worlds they provoke; and (3) to investigate the ways in which some of them stabilize and remain as infrastructures of economic reasoning in academic and policy realms, as well as the ways in which some of them either do not circulate at all or simply get lost. Such perspectives regarding the complexity and dynamics of knowledge creation lead out of the narrower history of disciplinary knowledge and, moreover, direct attention to different temporal scales.

JEL Codes: B2, B4.

Key Words: artifacts, historiography, models, economic knowledge.

“An object is something people [...] act toward and with,” Susan Leigh Star writes in her reflections on “boundary objects,” one of the most widely used concepts in the history of science and science studies. “Its materiality derives from action, not from a sense of prefabricated stuff or ‘thing’-ness” (Star 2010, 603). In this vein, artifacts are characterized not on the basis of some inherent qualities but because, as relational objects, they condition and are conditioned by practices. Investigating the material forms of representation of scientific objects and phenomena in terms of “boundary objects,” “inscription devices,” “infrastructures,” or “immutable mobiles,” does not aim at fully-fledged explanatory concepts, which would lay bare the workings of science. Rather, it shifts the focus from the finished products of knowledge to their making, its intermediate and often unsuccessful steps. This involves the semantic and symbolic dimensions of artifacts as well as their material characteristics, their recalcitrance and tenaciousness leading, for instance, to unexpected effects. If we follow the shifts and changes of artifacts over time and across disciplinary and academic boundaries: what kinds

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of questions and problems can such a perspective contribute to the history of contemporary economics?

Artifacts in the History of Economics

In principle, a whole range of things relate to the materiality of economics: physical objects (such as pocket calculators, notebooks, or computers), architectural spaces (for instance, the MIT economics department with its “open-door”-policy, or the affordances and restrictions that come with “desk-based” economic research), spaces of speech (such as conferences, journals, or water cooler discussions), and the bodies of economists (and their tacit knowledge). Moreover, artifacts in the history of economics are whatever economists treat as their very research material, the things they investigate, manage, and work with—charts, tables, and scatterplots—, and the seemingly mundane things involved in the making of economic knowledge—lists, survey forms, and graph paper. Looking at them as artifacts means that they are not merely texts to be read. They do not simply present theoretical ideas or informational content, but actively take part in economists’ research practices. They format information in ways that afford, promote, and restrict economists’ ways of collecting, organizing, saving, and processing knowledge, specific ways of seeing, and possibilities of reasoning.¹ Such artifacts warrant questions about their forms and materials, their workings, their practical, aesthetic, and medial characteristics. In principle, everything can be treated as an artifact—production possibility curves, Euler equations, t-statistics, and software codes. Most prominently, economic models have been treated as artifacts by historians and philosophers who put the character of economics as a “modeling science” and the very technicality of economic argument at the center of their inquiry.

Most economists, Mary Morgan, Marcel Boumans, and Harro Maas have argued, learn from building and manipulating models as their main research objects. In contrast to conventional economic methodology, and a philosophy of science that seeks to appraise economic models on the basis of their logical or semantic connections with theories, this literature promotes a philosophy of scientific practice. In particular, it hinges on the idea that modeling as a research practice is not just a matter of translating verbally expressed theories into mathematical ones; rather, it is an entirely different style of reasoning, one that treats models as quasi-material artifacts.² In this sense, the practice of model

¹ Equally, the artifacts of the history of economics are also the fruit of one’s own, the historian’s, effort: the way we look at economic practices (see Düppe, and Mata, this volume), the material that we select (see Giraud, this volume), and create (see Maas, Svorenčik, Jullien, and Claveau/ Herfeld, this volume), our theoretical concerns, historical apprehension, and sympathy of, or disdain for economists’ work.

² See Morgan (2012), Boumans (2005), and Maas (2014), building, amongst others, on the works of philosophers of science Ian Hacking, Nancy Cartwright, Mary Hesse, and Nelson Goodman as well as on econometricians and economists’ own conceptualization of their modeling work. For a related framework that focuses on the agency of models, see the sociologists of science Breslau and Yonay’s (1999, 319) claim that published articles are not simply rhetorical exercises, but “the endpoint of a grappling with objects that are external to the text.”

construction consists in creating new artifacts from already existing bits and pieces of knowledge, such as various kinds of observation, data, theoretical ideas, mathematical techniques, metaphors, analogies, and so forth. The process of fitting these “ingredients” together has been described as a trial-and-error procedure that involves, as Morgan (2012, 25) emphasizes, articulated knowledge as well as tacit, craft-based, and embodied knowledge. Even though the economist constructs the model, she does not necessarily know the results of her investigations in advance. This is due to the very material of the model: the stuff, in Boumans’ (2005, 13) words, it is made of. It is this material—for instance, a mathematical formalism—that determines the model’s form, frames the specific rules for reasoning with it, that is, the questions the modeler is free to ask, and the type of answers she can obtain, and that might bring about surprises. The modeler and the artifact are both active participants in the practice of knowledge-making, which does not follow a specific order but is shaped by the material it engages with. Here, the literature on economic modeling comes together with a strand of literature in the history of science, where the key quality of working objects is not their truthfulness, but rather if and how effectively they pose a problem and offer opportunities for interaction and experience.

This perspective of looking at models as artifacts is positioned against a received view of science. Models turn into both working objects to be investigated, and into instruments that help investigate an economic reality. The concern, however, is still one regarding the philosophy of science; individual models picked from the history of economics serve as exemplary cases for developing “a naturalized philosophy of science for economics” (Morgan 2012, xv), “a separate methodology of models” (Boumans 2005, 3), and an “economic methodology” (Maas 2014, 172). What happens if we transfer the view of models as artifacts from the methodological realm into a historical one? What if we use case studies as historical episodes to investigate the spread and effects of economic knowledge over time, and beyond economists’ work places?

“Following” as a historiographical strategy

If artifacts are not artifacts because of some inherent qualities, but rather because, at certain moments, they are treated as such, then “following artifacts” means to follow all the shifts and changes in their meanings, forms, and interpretations. Again, let me use models as an example to elaborate on the problems and questions such a perspective raises.

Even at the desk of the model-builder, a model has situated meanings: it is the *object of interest* before a very specific research background; the modeler must see to it that it works. At another moment of research, the model becomes a *resource to be exploited*—it is investigated, manipulated, and experimented with. In this stage, for the economist, it holds the great potential to answer questions and to be learned from. In yet another setting, the model results will be presented as *evidence*—now, the

model is not a resource with an open meaning, but is used to prove, stabilize, and secure certain statements and facts (cf. Hoffmann 2016 relating to the situated meanings of “data”). In addition to these situated characters of a model in one research project, it can at the same time fulfil many other functions and is therefore treated as different kinds of artifacts: an instrument of measurement, the basic design for larger-scale modeling projects, a teaching device, the object of simulations, and so forth. As a further complication, a model might also change its form, and even its material. When combined with other artifacts and techniques in order to build larger model architectures, or when implemented as an algorithm, it is extended or reduced, combined, and adapted. And even if a model keeps its shape, it still changes, when we engage with the narrative practices that accompany it. These narratives encompass, for instance, shifting interpretations regarding its representative power and policy implications as well as changing methodologies of modeling, which mediate the epistemic norms of the discipline. Treated as tools, images, or stories, models make possible futures and suspected past worlds visible, and establish specific ways of seeing and debating economic life while excluding others.

As a historiographical strategy, following the movements and shifts of artifacts might help investigate how economic knowledge—in the form of models, software packages, numerical targets, etc.—changes, stabilizes, and sometimes gets lost. One of the advantages of this perspective is that it does not posit a privileged geographical or social site, as it does not stop at disciplinary boundaries, and that it goes beyond a separation of “internal” and “external” factors. The changes models undergo are the result of an interaction with everything they encounter: the communities, institutions, people, and texts that bring them into circulation, and provide them with usefulness, and symbolic value. At the same time, models imprint on their environments. Just as the literature on modeling deals with the interactions between a modeler and the model, we might investigate the reciprocal shaping in other realms such as governmental routines, business procedures, or everyday practices.

The spread of economic knowledge, in such narratives, is not described as the distribution of economic ideas thought to be true, as some act of economists’ imperialism, or the simple blackboxing of economic theories. Rather, it takes account of the movements and transformations of the artifacts that not only create economic knowledge but also equip it with everyday effectiveness, computability, and prognostic potential. An example are the epistemic infrastructures of economic governance such as computerized systems of models in combination with the tools that organize political-decision making. How were specific models fitted together to accommodate local requirements? And how did they, irrespective of the intentions of modelers and bureaucrats, shape the perspectives and procedures of economic governance? Such an investigation provides a deeper understanding of how economists’ artifacts not only symbolically create entities like the economy, but also propagate a program of technologies, which stabilize and fortify very specific ways of reasoning, seeing, and acting. A basic

question that comes with this line of inquiry regards the capacity of artifacts to adapt to new circumstances. What is the relation between the malleability of a model and its potential to provide standards, and to impose limitations and exclusions, and mediate rules for a specific (material) way of reasoning?

Thinking back to the role of models in research practices, it is worth noting another feature of “following artifacts” as a historiographical strategy. It does not posit a privileged sequence or linear chronology but allows one to jump and to mix different layers of time. As outlined above, a model is, in part, the result of a trial-and-error procedure; its final workings and results are not necessarily anticipated or intended by the modeler. However, it still bears the traces of earlier knowledge. Moreover, we can find traces of models that are active today in the works of the 1950s or the 18th century. This does not mean that they were part of the ingredients the modeler used to construct the model or that they were “precursors.” Rather, these are traces of something that had not yet happened then, and that only came about through continuous rearrangement, rewriting, and realignment. Following these traces raises the question which parts and features remain, and which get lost. And what about the artifacts that do not circulate at all? Which political and economic constellations promote the resilience of some artifacts and the vanishing of others? And which constellations are promoted through the spread of some artifacts and the non-movement of others?

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