

Convention Theory, classification and quantification

Diaz-Bone, Rainer

Veröffentlichungsversion / Published Version
Zeitschriftenartikel / journal article

Zur Verfügung gestellt in Kooperation mit / provided in cooperation with:
GESIS - Leibniz-Institut für Sozialwissenschaften

Empfohlene Zitierung / Suggested Citation:

Diaz-Bone, R. (2016). Convention Theory, classification and quantification. *Historical Social Research*, 41(2), 48-71.
<https://doi.org/10.12759/hsr.41.2016.2.48-71>

Nutzungsbedingungen:

Dieser Text wird unter einer CC BY Lizenz (Namensnennung) zur Verfügung gestellt. Nähere Auskünfte zu den CC-Lizenzen finden Sie hier:
<https://creativecommons.org/licenses/by/4.0/deed.de>

Terms of use:

This document is made available under a CC BY Licence (Attribution). For more information see:
<https://creativecommons.org/licenses/by/4.0>

Convention Theory, Classification and Quantification

Rainer Diaz-Bone*

Abstract: »Konventionentheorie, Klassifikation und Quantifizierung«. The article presents the main contributions of the French approach of economics of convention (EC) to the analysis of classifications and quantifications. Here, Alain Desrosières has delivered many outstanding contributions. The article shortly presents the approach of EC. Conventions are socio-cognitive resources actors rely on to achieve shared interpretations, evaluations and valuations of situations and the value of objects, persons and actions. Also, the interpretation of institutions has to apply conventions. Conventions with semantic content and without semantic content are compared, and the different scopes of convention-based coordination (in time and space) are discussed. Also the conception of a political economy of classification and quantification is presented. At the end of the article, a typology of situations of classifications and quantifications is introduced.

Keywords: Economics of convention, institutions, classifications, quantifications, semantic content of conventions, neoliberalism.

1. Introduction

This contribution focuses on the outstanding contribution of Alain Desrosières to the analysis of classification and quantification (Desrosières 1998, 2008, 2008a, 2014).¹ Desrosières' work is closely linked to the scientific movement of the so-called "economics of convention" (in French *économie des conventions*) – in short EC –, which has been developed in the last three decades in the Paris region (Desrosières 2011; Salais 2012; Diaz-Bone 2015). Today, EC can be regarded as a core element of the new French social sciences (Dosse 1999; Nachi 2006; Corcuff 2011). Also, EC has been developed as a transdisciplinary and complex pragmatic institutionalism, focusing mainly on processes of economic coordination and collective assignment of worth to products, services but also to other objects and persons (Salais and Thévenot 1986; Favereau and Lazega 2002; Eymard-Duvernay 2006, 2006a; Diaz-Bone 2011, 2015, Bati-

* Rainer Diaz-Bone, Department of Sociology, University of Lucerne, Frohburgstrasse 3, 6002 Lucerne, Switzerland; rainer.diazbone@unilu.ch.

¹ See also the contributions in Emmanuel Didier and Jean-Jacques Dreesbeke, eds. (2014) and Didier (2016, in this HSR Special Issue).

foulier et al. 2016).² From the viewpoint of EC, competent actors rely on conventions to achieve shared interpretations in situations as a precondition to realize a collective goal. From its beginnings, EC has analyzed the significance of conventions as foundations for social processes of classification and quantification. Also, EC has connected categories and quantifications (figures/numbers) to the far-reaching and convention-based social coordination in which institutions (organizations, rules) are embedded. This approach includes innovative perspectives on classification and quantification, but links these processes also to the foregoing and the following social phenomena. In this article some of the main contributions to the analysis of classification and quantification of EC will be presented and discussed. But also some open questions and perspectives will be discussed.

2. Convention Theory

At the core of a convention is the attention to economic coordination out of which economic institutions, values and entities (products) emerge. Instead of postulating pre-given needs, resources, evaluations and product qualities – as transaction cost economics does –, EC regards convention-based coordination as the real ground of all these ontologies. And EC assumes a plurality of possible ways to structure these coordinations. There is no single “most effective” or “optimal” convention for economic production, distribution and consumption. The two monographs “On Justification” (Boltanski and Thévenot 2006) and “Worlds of Production” (Storper and Salais 1997) introduced two sets of conventions which were introduced on the basis of more general principles.³ And all the introduced conventions share the character as logics of coordination which provide actors a shared frame of interpretation, evaluation and valuation for the worth of goods, objects and persons. In these books, these conventions are presented as “orders of justification” (Boltanski and Thévenot 2006) or “worlds of production” (Storper and Salais 1997). This way, the emphasis of the convention-based coordination is placed on the normativity of coordination or on the collective intentionality of production. For EC, competent actors are able to evaluate the appropriateness of conventions in situations and they are regarded as competent to switch or to reconcile conventions. Examples for such conventions are the domestic convention, the industrial convention and the market convention. The *domestic convention* can be related to craftsmanship.

² See also the special issue of *Revue économique* 40 (2) from 1989 which introduced the notion “*économie des conventions*.”

³ There are two other important monographs for EC which were later worked out. These are “The New Spirit of Capitalism” (Boltanski and Chiapello 2006) and “The Empire of Value” (Orléan 2014).

Here, in small and family-based companies actors bring in the traditional ways of production, manual labor and personal experience to generate unique specimens. The *industrial convention* structures the coordination of scientifically controlled and planned mass production. Quantification and a high degree of division of labor are important principles. While the first two conventions have a long-term orientation, the *market convention* provides a short-term orientation. Actors are oriented towards individual needs and (changing) prices. The *civic convention* engages in equal rights and values actors who engage in public affairs. Actors relying on the *green convention* are looking for the protection of nature's integrity and they value products and actions applying this criterion.

There are more identified conventions as the network convention or the inspired convention. All are influential ways of coordination in the economy which cannot be reduced to one convention alone (Storper and Salais 1997; Boltanski and Thévenot 2006).⁴

Every modern approach has to deal with the two mega paradigms in the social sciences: pragmatism and structuralism. The perspective on conventions as structuring resources for competent actors indicates that EC relates pragmatist and structuralist traditions to work out a new pragmatic institutionalism. Objects and cognitive formats are included in theorizing and empirical analysis, because from the standpoint of EC they have an impact on coordination in situations. A pragmatic theorem is the difference between institutions and conventions. The reason is that institutions' meaning (the meaning of rules, standards, law etc.) for coordinating actors is conceived as incomplete which explains why conventions achieve their character as pragmatic resources for the usages of institutions.⁵

In fact, EC is unique in another regard: although it was founded by five economists – namely François Eymard-Duvernay, Olivier Favereau, André Orléan, Robert Salais and Laurent Thévenot – EC has been from its beginning a transdisciplinary scientific movement. EC integrated concepts, methods and research perspectives from history, statistics, sociology, educational science, health science, political science and law.⁶ Today, there is a third and interdisciplinary generation of representatives in France and EC has become an international transdisciplinary approach including a growing amount of researchers outside of France (Diaz-Bone 2015).⁷

⁴ All these conventions empirically occur not in their pure and ideal versions. That is the reason why Michael Storper and Robert Salais use the notion of "*possible worlds of production*" (Storper and Salais 1997). Luc Boltanski and Laurent Thévenot have worked out the tensions, compromises and combinations of the identified conventions (Boltanski and Thévenot 2006).

⁵ For a discussion of this difference see Salais (1998) and Diaz-Bone (2012).

⁶ See actually the dictionary "Dictionnaire des conventions" (Batifoulier et al. 2016).

⁷ As is documented by the contributions in the following issues of *Historical Social Research*: Rainer Diaz-Bone and Robert Salais, eds., 2011, Conventions and Institutions from a Histori-

3. Classification and Metric Measurement

One of the birth moments of EC was the analysis of social and institutional practices of classifications.⁸ At the French national institute for statistics and economic analysis (INSEE), Alain Desrosières and Laurent Thévenot (1979) started a methodological analysis of principles of social classifications. At the end of the 1970s, INSEE was an exceptional institution for transdisciplinary research on (statistical) categories, (social) class, categorization and classification.⁹ INSEE can be regarded as a birth place of EC.¹⁰ The new department for labor (“*division emploi*”) – headed by Robert Salais – was in charge of developing new approaches for the analysis of labor, unemployment and labor institutions (Salais 2008; Diaz-Bone 2015). Salais and collaborators reconstructed the upcoming of the labor category of “unemployed” in the evolution of the industrial organization in France (Salais et al. 1986). They showed that the category co-evolved with the upcoming of new labor institutions and a new interpretation of long-lasting labor relations (industrial labor contract, insurances, etc.). At INSEE, Desrosières and Thévenot were charged to prepare the reform of the French socio-professional categories – which in France had been widely used since the 1950s and were cognitive references in the French mass media and in the French population since then (Desrosières and Thévenot 2002; Amossé 2013, 2016). Research at INSEE continued foregoing traditions, such as the work of Durkheim and Bourdieu on social classes and categories, but also the studies on industrial and professional categories (see Diaz-Bone 2015).¹¹ One result of these studies was the identification of the conventional

cal Perspective, Special Issue of *Historical Social Research* 36 (4); Rainer Diaz-Bone and Robert Salais, eds., 2012, *The Économie des Conventions – Transdisciplinary Discussions and Perspectives*, Focus of *Historical Social Research* 37 (4); and Rainer Diaz-Bone, Claude Didry, and Robert Salais, eds., 2015, *Law and Conventions from a Historical Perspective*, Special Issue of *Historical Social Research* 40 (1); all issues are available at <<http://www.gesis.org/en/hsr/archive>>.

⁸ Another starting point was the analysis of labor and labor institutions, see Salais and Thévenot (1986), also Salais et al. (1986).

⁹ The notions “categorization” and “classification” are often used assuming similar meanings. But categorization emphasizes the *process of assigning* an entity (individual, event, object etc.) to a category, while classifying also emphasizes the *process of valuing* an entity by relating it to a class. In the social sciences the meaning of the word “class” denotes also social groups while the word “category” does not have this strong semantic relationship to social entities. The notion of “classification” denotes the process of classifying but also the architecture of the system of categories or classes – the latter is not part of the semantic content of “categorization.”

¹⁰ INSEE stands for the “Institut national de la statistique et des études économiques” <<http://www.insee.fr>>.

¹¹ There was also established research at INSEE, see the contributions of Bernard Guibert, Jean Laganier and Michel Volle (1971) and also from Michel Volle (1982).

and historical character of categories and classifications.¹² No social classification can be built only on logical principles alone and no social classification can be built on empirical data alone. Desrosières (1998) has invented the concept of the “*equivalence principle*” as the implicit logic upon which categories and classifications (as their systematic arrangement) are based. Also, Desrosières brought in the concept of “*equivalence space*,” which is the political and geographical scope of categories and classifications (Desrosières 1998; Didier 2016). In the succession of Durkheim and Bourdieu, it was evident for Desrosières, Boltanski, Salais and Thévenot that categories of the official administration are related to the symbolic struggles of social groups who want to achieve their group being represented and established as a category in the official statistical classifications e.g. the official system of professional groups (Diaz-Bone 2015). And vice versa, the conventionalists identified how the existing categories of official statistical classification were enacted by different actors and through a chain of coordinations as in the case of official surveys as powerful representations in the social space (Thévenot 1983; Desrosières 2007).¹³ Since then, the social conventions, underlying categories and surveys have been a continuous research interest of EC (Thévenot 2011, 2016). Another strand of research scrutinized the pragmatics of classification by arranging so-called “experiments,” which were situations in which individuals had to classify (to categorize) persons having only incomplete information about them. This way, Boltanski and Thévenot brought classifying individuals in situations in which they had to explain and to justify their practices (Penissat et al. 2016). Soon, it turned out that these individuals referred to more general principles when they had to justify their ways of classification as ways of valuing classified persons – at this moment in the 1980s Boltanski and Thévenot became aware of the “orders of justification” (Boltanski and Thévenot 1983, 2006). Another important concept which was developed in the context of this research on statistical categories and classifications is the concept of “investment in form” (Eymard-Duverney and Thévenot 1983, 1983a; Thévenot 1984). But actors also need a cognitive instrumentation to rely on when they coordinate and actors have to invest in forms i.e. to construct them as equipment for coordination. Forms enhance the scope in time (duration) and space (range) of convention-based coordinations. Statistical categories can be conceived as one sort of such forms.

French conventionalists first gained access to the sociology of quantification analyzing classifications and of categories which are regarded as the basis of counts of classified individuals. As Espeland and Stevens (2008) remarked, one can understand categorization and classification as basic forms of measurement on the measurement level of nominal scale (which they name “marking”). They

¹² Many results are documented in the two volumes edited by Joëlle Affichard (1977, 1987).

¹³ Laurent Thévenot compiled a set of research contributions (INSEE 1981).

refer to Hubert Blalock's presentation of the nominal scale. Blalock related this measurement level to classifications.

Classification is fundamental to any science. All other levels of measurement, no matter how precise, basically involve classification as a minimal operation. We therefore can consider classification to be the lowest level of measurement as the term is used in its broadest sense. For example, we place Presbyterians and Catholics in distinct categories, but we do not imply that one is greater than or better than the other. As long as the categories are exhaustive (include all cases) and non-overlapping or mutually exclusive (no case in more than one category), we have the minimal conditions necessary for the application of statistical procedures. The term nominal scale has been used to refer to this simplest level of measurement (Blalock 1972, 16).

In contrast to the statistics textbook, conventionalists' research was interested in the historical emergence and the pragmatic handlings of these categories. From EC's perspective, it is problematic to equalize classifications and the nominal scale. The reason is that EC studies empirical social classifications (instead of analytic variables defined by statisticians). Social classifications can have many different levels (organized in main categories and subcategories) and be based on a complex arrangement of many dimensions – while a scale must be unidimensional. As an institutionalist approach, EC recovers also the social foundations of classifications and categories. There are two main arguments: (1) Social categories are based on conventions as underlying social principles and (2) conventions – as equivalence principles – interrelate social categories and enable the socially recognized architecture of social classifications (as hierarchies of social categories).

Measurements at the nominal scale level and higher levels of measurements are in some aspects different.¹⁴ As Table 1 illustrates, metric scaling results in numerical representations while single categories – which can be coded with arbitrarily assigned numerical codes – do not have an inherent relation to numbers. The exception is categories being counted, but this is already a strategy of aggregation.

¹⁴ Located between the nominal scale and the (two) metric scales (interval and ratio scale), the ordinal scale is very common especially in survey data sets. In difference to the nominal scale it includes rankings of categories (see Blalock 1972 and Duncan 1984). Here, nominal scale and metric scale are discussed because they represent two statistical traditions which are related to two different philosophies of the social. George Udny Yule's perspective on statistics was its property to model the categorical reality of societies (and social classes), while Karl Pearson's perspective on statistics was its property to model the continuous reality of societies, which he believed to be the latent reality underlying categories (Agresti 2013, 623).

Table 1: Categories and Measurements

	Categories/Classes ("nominal scale")	Metrics ("metric scale")
Equivalence Principle	categorical identities and their relations	scaling procedure
Forms of Complex Arrangements	classification as system of categories/classes	index as one new quantitative representation
Quantification	only by aggregation (as counts) – numerical codes are arbitrarily assigned	case by case and by aggregation
(E)valuation	additional/foregoing processes are necessary to differentiate good and bad categories	hierarchical ranking "built in" by metric measurement
Dependency of Representational Context	high	low

Alain Desrosières had already discussed the differences between categorization and (metric) measurement early on (Desrosières 1995). Later he stated that quantification is to be composed out of two elements. First a convention must be introduced and, second, based on the convention, measurement can be proceeded (Desrosières 2008, 10). But the main difference between nominal scales ("categories") and metric scales is that metric figures, numbers, have a "built-in valuation" (already on the single case level) because the represented information enables an immediate evaluation in terms of "more" or "less." Even complex arrangements of metrical measurement as indices offer an immediate evaluation because an index is also a numerical representation. In contrast, classifications as complex architectures cannot be represented in a simple manner. Actors have to study them, otherwise they will not understand the information entailed in single categories and their positioning in the classification. The result is that the valid evaluation of representations of categories (even if numerically coded) is more dependent on contexts than the evaluation of representation of metric measurements.

4. Semantic Content and Scope

However, convention theorists use different notions of convention. And they are aware of this different meaning of the notion "convention." So far, the article presented the two important notions of convention which were introduced as orders of justification (Boltanski and Thévenot 2006) or as worlds of productions (Storper and Salais 1997). It is important to add now that these two versions of conventions in EC are based on underlying principles which help to

identify acceptable conventions and to delimit orders of justification resp. worlds of productions from other principles or devices of coordination.¹⁵ EC here has introduced structuring and underlying, more general criteria to systematize the conventions in the two important sets of convention, Boltanski, Thévenot, Storper and Salais worked out.¹⁶ These conventions offer *semantic content*. They contain – because of the deeper foundation on more general principles – a structured meaning which can be adapted to many situations in form of explanatory stories. This way, the structural influence on EC articulates itself.¹⁷ Ordinary actors understand the adequacy of these kinds of conventions in situations as socio-culturally established structures. In this sense, actors must be practical metaphysicians (Boltanski and Thévenot 2006, 145).

But in EC one can identify other usages of the term “convention.” Other kinds of conventions are more or less introduced as socially established standards. What makes these usages of the term interesting but also a problem is their *missing semantic content*. This idea of convention without semantic content can be illustrated by the highly influential definition provided by David Lewis.

A regularity R in the behavior of members of a population P when they are agents in a recurrent situation S is a convention if and only if, in any instance of S among members of P,

- (1) everyone conforms to R;
- (2) everyone expects everyone else to conform to R;
- (3) everyone prefers to conform to R on condition that the others do, since S is a coordination problem and uniform conformity to R is a proper coordination equilibrium in S (Lewis 1969, 42).

It is striking to see that Lewis does not include semantics (meaningful content, semantic structure or discourse) in the definition of the convention R itself, alt-

¹⁵ Storper and Salais introduced two oppositions to identify four worlds of productions: (1) do they produce specialized products or standardized products and (2) do they produce generic products or dedicated products? (Storper and Salais 1997, 32 et seq.). Luc Boltanski and Laurent Thévenot presented “axioms” for a grammar of orders of justification (Boltanski and Thévenot 2006, 74 et seq.). These axioms for acceptable orders of justification demand for example that all possible members of a “polity” can be identified – which are all human beings who could share an agreement in this world. Other axioms require that all members of a polity have principle access to different states of worth and all states of worth can be ordered. And it must be mentioned here that both models of conventions postulate convention-based convention to address a common good.

¹⁶ This is the main difference of EC to other institutionalist approaches who do not offer any criteria and whose set of “logics” of coordination can be regarded as arbitrary and unsound ad hoc-collections of “logics.” This seems to be the case with the approach of “institutional logics” (Thornton et al. 2012). For comparisons see Charlotte Cloutier and Ann Langley (2013) and Rainer Diaz-Bone (2014).

¹⁷ The structuralist influence on EC is well-remarked in the introduction to the collection “Conventions and structures in economic organization” (Favereau and Lazega 2002), see Emmanuel Lazega and Olivier Favereau (2002).

though he tried to bring in a foundation for a theory of language! This kind of “emptiness” of his notion of convention opens the door for the problem of arbitrariness. Olivier Favereau (2008) has started to work out a critique of Lewis’ definition, arguing that conventions cannot be reduced to objective and observable behavior (as a way of conforming) and that conventions need to be regarded as regularities in intersubjective actions and beliefs (where the latter are not observable). Also, Olivier Favereau points to the problem of the importance of language use; because conventions have their existence in (collective) language use, they have to be represented in language and conventions have to be interpreted (2008, 124).¹⁸ Important for Favereau’s critique is the distinction he makes between “two types of convention, embodying, in the first case, a mental model of a common world, and in the second case, a behavioral model of interindividual interaction” (Favereau 2008, 125).¹⁹ The identification of different kinds of conventions is an important contribution of Favereau’s work.

But one has to add another element in the critique of Lewis’ concept of convention. Lewis did not consider and analyze the *semantic content and the semantic organization of the convention itself* – finally conventions without semantic content could become also a “mental model of a common world.”²⁰

For Lewis, the established practice of driving cars on the right side of the street in the US is an example of such a convention (Lewis 1969, 41). There will be historical reasons why cars are driven on the right side in the US. But this convention is arbitrary in the sense that driving on the right side solves the problem of car traffic (which is avoiding accidents) in the same way as driving on the left side – as it is the convention in the UK. There is no substantial reason why the US convention should be more legitimate or preferred than the UK convention. This rule is a standard which works perfectly well but *without semantic content* that could explain why the right side of the street in the US is normative “the right side” and why this convention should be considered as superior to another one. The only requirement for this car-driving convention is that everybody in the same country sticks to it. But one could easily imagine that one convention could be replaced by another one (for whatever reason). This would be a costly policy because the convention has prolonged in traffic law and the technical design of cars (where the steering wheel is on the opposite side, depending on the convention). So the driving convention could appear as justified by its anchoring in law and in technical features. But it would be a mistake to believe that the convention itself has enforced its connection to law

¹⁸ Independently, François Eymard-Duvernay (2009) has also discussed the foundational importance of language use for EC.

¹⁹ See also the proposal of John Latsis (2005) similar to the one of Olivier Favereau (2008). For the concept of mental models see Douglass C. North and Arthur Denzau (1994).

²⁰ André Orléan has proposed to relate the notion of paradigm to EC’s concept of conventions (Orléan 1986, 1989, 1999). This is more close to the notion of conventions with semantic content. But Orléan does not reflect on the distinction of different kinds of conventions.

and technical features. There is no inner relationship between driving on the left side in the UK and UK traffic law or UK car-engineering. The car driving convention is not able to enforce its extension to other realms. For the UK, one could argue that also trains use the right side. But in Switzerland cars are driven on the right side of the street while trains use the left track.²¹ There is no necessity to have the same convention for car driving and trains; different conventions can be combined and all of them are arbitrary – as their combination is.

In contrast to conventions without semantic content, conventions with semantic content have an inner potential to enforce a more coherent fitting with their social “environment.” Of course, conventions do not enforce themselves, but their enacting in a process of coordination also enacts their semantic content as resource for shared ways of interpretation, evaluation and valuation that will work for coordination. These practices can be “shared” and will “work” because of their coherence with objects and cognitive formats. This coherence is possible when the process of coordination translates the semantic content of the convention into this collective practice and into a corresponding result, thereby adequately supported by equipment (of objects and cognitive forms) which respects and fits to the semantic convention of the convention.

Conventions with semantic content (which are well combined with object and cognitive formats) bring in more power to extend their area of application, thereby overarching single situations of coordination and integrating series of coordinations.²²

An example to illustrate this “powerful effect” is the study about French Camembert production offered by Pierre Boisard and Marie-Thérèse Letablier (1987, 1989; Boisard 1991, 2003; Eymard-Duvernay 2004). They compared the two coexisting but completely opposite conventions resp. worlds of Camembert production, Camembert distribution and Camembert consumption.

The traditional way to produce, distribute and consume Camembert expects the pre-product milk to be a natural product from traditional Normand cows, which entails its seasonal, climate and regional taste. The cheese is produced in family-based cheese dairies in a manner which is characterized by craftsmanship and traditional knowledge. Milk is regarded as a natural and living substance. These producers have their distinct milk production, their Norman cows and their Norman meadows nearby. Manual labor, personal expertise and regional identity are quality markers for the cheese and its taste. The taste of the

²¹ In fact, the reason why in Switzerland trains use the left track is that English engineers were involved in the establishment of the Swiss railway system.

²² Here, the notion of convention of EC has some parallels to the concept of “episteme” as presented by Michel Foucault (1994). As conventions with semantic content, the concept of episteme is a deeper structure and endows knowledge (discourses) and practices with a high degree of coherence. And an episteme is conceived to integrate many different discourses and to structure them in a coherent way – thereby realizing itself as an overarching and deeper structure. See also Diaz-Bone (2013).

produced traditional Camembert is varying. It varies not only with season and climate but depends also on the tradition of the cheese diary. The cheese is certified by regional labels (“certificate of origin”) and distributed to special cheese retailers and it is consumed by “connaisseurs” of the French cheese tradition. The traditional Camembert cannot be stored for a long time and it is to be eaten soon.

The modern production, distribution and consumption of Camembert as mass production are made possible because the milk is supplied from farms all over France and the milk is pasteurized and homogenized and transformed into a standardized product. The Camembert is produced in cheese factories which are equipped with modern food-industry technology and scientific experts, controlling the production at every stage. The produced cheese has a standardized taste and it is produced for long duration. Consumers buy it in the supermarkets, appreciate its predictable taste, store it in the refrigerator and eat it cold. Here the domestic convention and the industrial convention are opposed to each other. They define two completely different ontologies and qualities of “Camembert.” In this case, the two quality conventions are able to integrate and to govern two different chains of production, distribution and consumption. But quality conventions are not always able to “enforce themselves” as a governance principle through a whole chain, as the analysis of quality chain has demonstrated. Wide-ranging quality chains – like the ones for different sorts of coffee – integrate different quality conventions on different segments of the chain (Daviron and Ponte 2005; Ponte and Daviron 2005). And it becomes a new research topic to analyze how to explain the quality governance of the whole chain (Ponte and Sturgeon 2014).

The scope of conventions can be related to the scope of quantifications which are based on conventions. To argue that conventions with semantic content have more intrinsic power to extend their scope does not mean to say that conventions without semantic content will not realize an extended scope. Instead, these conventions gain their potential from their embeddedness in networks of objects, practices and cognitive forms as an “extrinsic property.”

Conventions with semantic content and conventions without semantic content will be different in regard to their legitimacy and also to the legitimacy of quantifications built upon them. The explanation for this is again their content, now as order of justification which backup discursive strategies of explanation and legitimation. And quality conventions as the industrial convention or the market convention which have a close affinity to numbers as cognitive forms can be expected to be the most powerful in this regard. To be clear: The argument developed here is about the convention-based procedures how quantification is implemented, i.e. how numerical representations are derived from conventions. It would not be sufficient just to count ex post any kind of convention-based phenomena. Conventions without semantic content – and quantifications built up on them – will have difficulties to be protected against

critique if their arbitrary character is recognized and then reflected as an inadequate foundation. Table 2 compares the two kinds of conventions discussed here, summarizing some of the relevant different properties they have for EC.

Table 2: Conventions with Semantic Content and without

	With Semantic Content	Without Semantic Content
Articulation	Conventions as logics of coordination (orders of justification or worlds of productions)	conventions as (pure) "standards"
"Grammar"	yes	no
Arbitrary	no	yes
Intrinsic Power to Establish its Scope (in time/space)	high	low
Intrinsic Property to be Publicly Recognized as Legitimate	high	low

In contrast to other institutionalist approaches, EC has a more skeptical position towards theoretical models combining different ontological levels. EC's methodological position is located beyond methodological individualism and methodological holism. As Storper and Salais (1997) argued, EC tries to place interpretation from the standpoint of actors in situations of coordination. Therefore, one could label EC's methodological position a complex pragmatic situationalism (Diaz-Bone 2011, 2015). If EC avoids basing its explanatory power on a duality of macro-entities (as "society as a whole") and micro-entities (individuals and their preferences),²³ then the concept of "scope" becomes important to EC: "our framework [...] challenges the classical macro-micro distinction since judgements of worth are precisely ways of enlarging the scope of an evaluation from a local context and of crafting generalized statements" (Thévenot 2001, 418). To extend the range of coordinations in the dimensions of time and space, actors rely not only on established and well-known conventions but also on *intermediaries*. Intermediaries (as persons, objects) contribute to the scope of conventions from situation to situation (Eymard-Duvernay and Marchal 1997; Bessy and Chauvin 2013; Diaz-Bone 2015).

Theodore Porter (1995) has argued that quantification is a *technology of communication and of distance*, arguing that quantification effectuates trust (as

²³ To use such multi-level models (as micro-macro-models or micro-meso-macro-models) inevitably brings in the problem of different ontologies located at different levels. But there are conditions for the use of such models. (1) These holistic ontologies (macro level) and individualistic ontologies (micro level) need to be theorized in a complete and adequate manner. (2) These models need to include mechanisms which link the different levels, thereby respecting the different involved ontologies. In fact, the pragmatist foundation of EC contradicts the usage of multi-level models, because pragmatism rejects dualisms.

impersonal and objective information) and that numerical information spans distance in time and space more easily.

Standardization is a social strategy and social practice which also is applied for the purpose of the extension of scope of coordination (Brunsson and Jacobsson 2000; Timmermans and Epstein 2010; Busch 2011; Thévenot 2009, 2015). Standardization (as normalization) has been studied as a technology of power, governance and regulation (Brunsson and Jacobson 2000; Thévenot 2009; Busch 2011; Ponte et al. 2011), and the work of Michel Foucault is most prominent for this perspective (Foucault 1995). Those conventions, which show an affinity for standardization via quantification – as the industrial convention and the market convention – can rely on this strategy. Conventions that do rely on certification – as the green convention and the civic convention – also do extend their scope by the implementation of certificates via standardization (and the support of law).²⁴ Standardization is a complex process, comprising a series of steps and including the definition, implementation and exertion of standards (Timmermans and Epstein 2010). From the standpoint of EC, these steps always need to be embedded in a convention-based practice, because standards are regarded as incomplete in terms of their meaning (as any other kind of institution is). And the idea of a convention as a “pure standard” refers to conventions without semantic content – as the example from Lewis of car-driving conventions mentioned above. (And consequently a convention with semantic content will be needed to exert the convention as standard.)

Alain Desrosières (1998, 2001) identified two related phenomena, based on this kind of quantification as standardization: “metrology” and “adunation.” Metrology is the historical process of implementing the metrical measurement system (not only in the sciences but also in everyday life – for trade, time measurement, geography etc.).²⁵ Adunation is the process of forming the (French) Nation by establishing nationwide standards (not all of them quantitative ones).

Standardization is not essentially bound to quantification. Standardization is possible as the definition of a routine or a procedure which can be exerted without numerical representations.

But the process of standardization as the transformation of a convention into a numerical represented rule contradicts – at least to some degree – inherently some of the conventions identified by EC in the sense that these conventions resist this kind of transformation (as the domestic conventions or the convention of inspiration). Their cognitive formats are different to numbers as representations. In-

²⁴ Laurent Thévenot has argued that standardization must be complemented by the personal regimes of engagement, so that standardization can be transmitted into individual routines and practices (Thévenot 2015).

²⁵ See for the history of metrology also the works of Eviatar Zerubavel (1981), William Cronon (1991), Eric Brian (1994), Ken Alder (2002) and Benoit Godin (2005).

stead, stories (about personalized examples and visual (iconic) representations are relevant for coordinations based on these conventions.

5. Perspectives for a Political Economy of Classification and Quantification

The influential works of Alain Desrosières on the history of statistics were path-breaking for a comparative understanding of official statistics (Desrosières 2008, 2008a, 2014). His work cannot be restricted to the history of statistical thinking in the sense of a history of the modern science of statistics. His notion of statistics correlates to a much wider idea of statistics as the science of (mainly numerical) state knowledge, of its institutions and of its representation. He integrated the analysis of statistical forms and societal organizations – as historical forms of state, of the economy and of their interrelations.

Table 3 summarizes different forms of the interrelation of state, markets and statistics in the course of the last centuries as they were identified by Desrosières (2011a). The five identified epochs articulated different forms of the political economy of classification(s) and quantification(s). It is important to understand the role of statistics in this table. These are dispositives requested by state administrations to fulfill their tasks – which vary depending on the different philosophies of the state and its role in the economy.

So far, EC has mainly focused its analysis on processes of classification and quantification implemented and entertained by state institutions. Maybe this is a bias induced by the French social sciences, where the state was identified as an important generator of societal representations (Desrosières and Thévenot 1979, 2002) and social groups (Bourdieu 1984; Salais et al. 1986; Boltanski 1987). Alain Desrosières' important typology can be characterized as *state-centered and developed from the perspective of official statistics*. He studies the role of state-driven official statistics and its statistical forms for the economy. For this purpose his work will have an enduring relevance and impact.

But nowadays, more and more scholars discuss developments and upcoming agencies for classifications and quantifications which are not controlled or entertained by state administrations. One catchword is “big data” (Mayer-Schönberger and Cuiken 2013; Japoc et al. 2015), denoting the automated search and economic exploitation of structures in huge amounts of data sets. This phenomenon becomes more virulent because of the ubiquity of the Internet and the computerization of everyday social activities.

Table 3: The State, the Market and Statistics

	Conceptualization of Society and of the Economy	Mode of Action	Forms of Statistics
<i>Engineer State</i> Production and People (since the 17th century)	hierarchically structured institution, rationally organized	optimization under constraint; reduction of costs; planning; technocracy;	demography; production in physical quantity; input-output-table; material balance
<i>Liberal State</i> Trade and Prices (since the 18th century)	physiocracy; an extensive market; free competition	fight against corporatism; free-trade philosophy; anti-trust law	statistics promoting market transparency
<i>Welfare State</i> Waged Work and its Protection (since the end of 19th century)	the labor market has to be protected	laws on working hours, accidents, unemployment; compulsory social insurance systems	labor statistics; surveys of working households budgets; consumer price indexes
<i>Keynesian State</i> Global Demand and its Components (since the 1940s)	markets cannot function on its own and must be regulated at a global level	managing the occasional gap between global supply and demand through state policies	national accounting; economic budgets
<i>Neoliberal State</i> Polycentrism, Incentives, Benchmarking (since the 1990s)	an extensive market; free and undistorted competition	moving from rights to incentive; turning administrations into agencies	construction and use of indicators to evaluate and classify performance; benchmarking

Source: Desrosières (2011a, 45)²⁶

What is different to the world of official statistics in the era of neoliberalism is the *increasing privatization* of data collection and data analysis. The underlying conventions for classification and quantification in the private sphere of the (Internet-)economy are *invisible* and therefore, no more accessible to public observation and deliberation.²⁷ For example, private enterprises implement their own scoring systems to evaluate customers and clients, which are not visible for them and in many cases customers and clients don't even know that there are evaluated this way (Fourcade and Healy 2013; Mayer-Schönberger and Cukier 2013).

Desrosières already noticed processes in the “statistical chain,” which make the initially underlying conventions of statistics (as invented by official statisticians) invisible and transform the interpretation of statistical figures from a

²⁶ The table was slightly modified and shortened by the author.

²⁷ For a discussion of the contradictions and limits of neoliberalism from the standpoint of convention theory see William Davies (2014) and the review essay by Diaz-Bone (2016).

conventionalist representation to a “realistic” representations of social entities – the statistics from then are not being recognized any longer as based on conventions (Desrosières 2009, 308).²⁸

Once quantification procedures are encoded and become routine, their products are objectified. They tend to become ‘reality’ in an apparently irreversible way. The initial conventions are forgotten, the quantified object is naturalized and the use of the verb ‘to measure’ comes to mind or is written with no further thought (Desrosières 2015, 334).

And there is a social demand for such a realist representation of social entities by statistical figures, which are legitimated by an unchallenged institution (Desrosières 2009, 313). One can argue that the constellation of neoliberalism and computerization in time of the Internet will extend and accelerate the processes which naturalize the products of quantification procedures.

As Desrosières indicated in the characterization of the neoliberal state (see last row in Table 3), data production has become polycentric, placing the state in a new situation with private organizations (big enterprises and non-government organizations, NGOs), who became data producers themselves, thereby questioning the legitimacy of the state monopoly for societal representations based on numerical data. The state has lost its position as the principle guarantor for symbolic power and has also lost its status as the “monopoly of legitimate symbolic violence” (Bourdieu 2015, 4).²⁹

Table 4 provides a first sketch of a more general frame, presenting in the columns four ideal types of situations in which classification and quantification can be executed.

The perspective to understand these situations is the perspective of coordinating actors, not the one of official statistics in relation to the state and to the economy – as in Table 3. The four situations represent four possible and own standing “centers” or situations for classifying and quantifying processes which emerge out of actor’s coordination. Here, the claim is not that the table lists all possible situations. But the presented situations are characterized by a maximum of differences in regard to aspects discussed so far – and they should be understood as ideal types which do not occur in pure form in reality.

²⁸ For the concept of statistical chain see: Laurent Thévenot (1983), Alain Desrosières (2007) and Diaz-Bone (2016).

²⁹ The causes for this loss of the state’s position are also located on the supra-national level as Robert Salais (2013) has analyzed in his history of the origination of the European Union.

Table 4: Four Situations of Classification and Quantification

	Centralistic State Situation	Deliberative, Pluralistic Public Situation	Free Market Situation	Private Monopolistic Situation
Example	officialdom, state administration	social movements, NGOs	stock exchange	Internet monopoly
Classification or quantification legitimated by monopoly of symbolic power	yes	no	no	no
Power monopoly for implementation of classification or quantification	yes	no	no	yes
Classification or quantification orientation towards a common good	yes	yes	yes	no
Visible convention(s) of classification or quantification	yes	yes	yes	no
Debatable/discussable conventions	no	yes	no	no
Acceptance for a pluralistic constellation of classification or quantification	no	yes	no	yes
National constraint of classification or quantification	yes	no	no	no
State convention	external state	situated state	absent state	absent state

Alain Desrosières (2015) has coined the notion of “retroaction,” which denotes the public questioning of official statistics by social groups which are concerned by quantification in a devaluing (discriminating) way.³⁰ Statistics not only has become an *object of critique*, but has become a *dispositive of social critique* as well (Desrosières 2014a).³¹ All in all, neoliberalism cannot be reduced to one convention or assigned as denominator to a whole socio-economic epoch. All four situations (and maybe some more) have occurred in modern societies over a few hundred years, but in different constellations, and

³⁰ Wendy Espeland and Michael Sauder (2007) have applied the concept of “reactivity” in their analysis of actor’s reaction to rankings. Annick Bourguignon and Eve Chiapello (2005) worked on the role of criticism in the processes of implementing quantitative measurements as performance evaluation systems. Antoine Lyon-Caen and Joëlle Affichard (2005) analyzed the implementation of the Open Method of Coordination and processes of upcoming resistance to it.

³¹ See also the French approach of “Statactivisme” (Didier and Tasset 2013; Bruno et al. 2014; Bruno et al. 2014a).

they have varying impact in different social spheres. Seen from the standpoint of coordinating actors, different conventions of the state – as they were introduced by Michal Storper and Robert Salais (Storper and Salais 1997; Salais 2015) – can be adequate frames in the definition of the situation, the collective intentionality and the common good. The notion “convention of the state” is different from the state-centered perspective which takes the state (its administrations and its legitimacy) as granted. The “external state” is actor’s expectations to have state administration to intervene and to solve the problem of coordination. The “absent state” is actor’s expectation that the state will do nothing concerning the coordination and its outcome. The “situated state” is a frame for actors who know that they can pursue the common good and only in case of failure they expect the state to intervene (not knowing in which manner). These different interpretations of “the state” will result in different ways, how to proceed quantifications.

References

- Affichard, Joëlle, ed. 1977. *Pour une histoire de la statistique. Vol. 1: Concepts*. Paris: INSEE/Economica.
- Affichard, Joëlle, ed. 1987. *Pour une histoire de la statistique. Vol. 2: Matériaux*. Paris: INSEE/Economica.
- Agresti, Alain. 2013. *Categorical data analysis*, 3rd ed. New York: Wiley.
- Alder, Ken. 2002. *The measure of all things: The seven-year odyssey and hidden error that transformed the world*. New York: The Free Press.
- Amossé, Thomas. 2013. La nomenclature socio-professionnelle. *Une histoire revisitée* 68 (4): 1039-75.
- Amossé, Thomas. 2016. The Centre d’études de l’emploi (1970-2015): Statistics – on the Cusp of Social Sciences and the State. *Historical Social Research* 41 (2): 72-95. doi: 10.12759/hsr.41.2016.2. 72-95.
- Batifoulier, Philippe, Franck Bessis, Ariane Ghirardello, Guillemette de Larquier, and Delphine Remillon, eds. 2016. *Dictionnaire des conventions*. Lille: Septentrion.
- Bessy, Christian, and Pierre-Marie Chauvin. 2013. The power of market intermediaries. From information to valuation processes. *Valuation Studies* 1 (1): 83-117.
- Blalock, Hubert M. 1972. *Social statistics*, 2nd ed. New York: McGraw-Hill.
- Boisard, Pierre. 1991. The future of a tradition: Two ways of making camembert, the foremost cheese of France. *Food and Foodways* 4 (3/4): 173-207.
- Boisard, Pierre. 2003. *Le camembert. A national myth*. Berkeley: University of California Press.
- Boisard, Pierre, and Marie-Thérèse Letablier. 1987. Le camembert: normand ou normé. Deux modèles de production dans l’industrie fromagère. In *Entreprises et produits*, ed. François Eymard-Duvernay, 1-29. Paris: Presses Universitaires de France (Cahiers du Centre d’études de l’emploi 30).
- Boisard, Pierre, and Marie-Thérèse Letablier. 1989. Un compromis d’innovation entre tradition et standardisation dans l’industrie laitière. In *Justesse et justice*

- dans le travail*, ed. Luc Boltanski and Laurent Thévenot, 209-18. Paris: Presses Universitaires de France (Cahiers du Centre d'études de l'emploi 33).
- Boltanski, Luc. 1987. *The making of a class. Cadres in French society*. Cambridge: Cambridge University Press.
- Boltanski, Luc, and Eve Chiapello. 2006. *The new spirit of capitalism*. New York: Verso.
- Boltanski, Luc, and Laurent Thévenot. 2006. *On justification. Economies of worth*. Princeton: Princeton University Press.
- Bourdieu, Pierre. 1984. *Distinction. A social critique of the judgement of taste*. Cambridge: Harvard University Press.
- Bourdieu, Pierre. 2015. *About the state. Lectures at the Collège de France 1989-1992*. Cambridge: Polity Press.
- Bourguignon, Annick, and Eve Chiapello. 2005. The role of criticism in the dynamics of performance evaluation systems. *Critical Perspectives on Accounting* 16 (6): 665-700.
- Brian, Eric. 1994. *La mesure de l'État: administrateurs et géomètres au 18e siècle*. Paris: Albin Michel.
- Bruno, Isabel, Emmanuel Didier, and Julien Prévieux, eds. 2014. *Statactivisme. Comment lutter avec des nombres*. Paris: La Découverte.
- Bruno, Isabel, Emmanuel Didier, and Tommaso Vitale. 2014a. Statactivism. Forms of action between disclosure and affirmation. *Partizipazione e conflitto* 7 (2): 198-220.
- Brunsson, Nils, and Bengt Jacobsson. 2000. *A world of standards*. Oxford: Oxford University Press.
- Busch, Lawrence. 2011. *Standards. Recipes for reality*. Cambridge, MA: MIT Press.
- Cloutier, Charlotte, and Ann Langley. 2013. The logic of institutional logics: Insights from French pragmatist sociology. *Journal of Management Inquiry* 22 (10): 360-80.
- Corcuff, Philippe. 2011. *Les nouvelles sociologies. Entre le collectif et l'individuel*, 3rd ed. Paris: Armand Colin.
- Cronon, William. 1991. *Nature's metropolis: Chicago and the Great West*. New York: Norton.
- Davies, William. 2014. *The limits of neoliberalism. Authority, sovereignty, and the logic of competition*. London: Sage.
- Daviron, Benoit, and Stefano Ponte. 2005. *The coffee paradox. Global markets, commodity trade, and the elusive promise of development*. New York: Zed Books.
- Desrosières, Alain. 1995. Classer et mesurer: les deux faces de l'argument statistique. *Réseaux* 13: 11-29.
- Desrosières, Alain. 1998. *The politics of great numbers. A history of statistical reasoning*. Cambridge: Harvard University Press.
- Desrosières, Alain. 2001. Entre réalisme métrologique et conventions d'équivalence: les ambiguïtés de la sociologie quantitative. *Genèses* 43: 112-27.
- Desrosières, Alain. 2007. Surveys versus administrative records: Reflections on the duality of statistical sources. *Courrier des statistiques. English series* 13: 7-19.
- Desrosières, Alain. 2008. *Pour une sociologie historique de la quantification. L'argument statistique I*. Paris: Mines ParisTech.

- Desrosières, Alain. 2008a. *Gouverner par les nombres. L'argument statistique II*. Paris: Mines ParisTech.
- Desrosières, Alain. 2009. How to be real and conventional: A discussion of the quality criteria of official statistics. *Minerva* 47: 307-22.
- Desrosières, Alain. 2011. The economics of convention and statistics: The paradox of origins. *Historical Social Research* 36 (4): 64-81 <<http://www.ssoar.info/ssoar/handle/document/36315>>.
- Desrosières, Alain. 2011a. Words and numbers. For a sociology of the statistical argument. In *The mutual construction of statistics and society*, ed. Ann R. Saetnan, Heidi M. Lomell and Svein Hammer, 41-63. London: Routledge.
- Desrosières, Alain. 2014. *Prouver et gouverner. Une analyse politique des statistiques publiques*. Paris: La Découverte.
- Desrosières, Alain. 2014a. Statistics and social critique. *Partizipazione et conflitto* 7 (2): 348-359.
- Desrosières, Alain. 2015. Retroaction: How indicators feed back onto quantified actors. In *The world of indicators. The making of governmental knowledge through quantification*, ed. Richard Rottenburg, Sally E. Merry, Sung-Joan Park and Johanna Mugler, 329-53. Cambridge: Cambridge University Press.
- Desrosières, Alain, and Laurent Thévenot. 1979. Les mots et les chiffres: les nomenclatures socioprofessionnelles. *Economie et statistique* 110: 49-65.
- Desrosières, Alain, and Laurent Thévenot. 2002. *Les catégories socioprofessionnelles*, 5th ed. Paris: La Découverte.
- Diaz-Bone, Rainer. 2011. The methodological standpoint of the “économie des conventions”. *Historical Social Research* 36 (4): 43-63 <<http://www.ssoar.info/ssoar/handle/document/36305>>.
- Diaz-Bone, Rainer. 2012. Elaborating the conceptual difference between conventions and institutions. *Historical Social Research* 37 (4): 64-75 <<http://www.ssoar.info/ssoar/handle/document/38408>>.
- Diaz-Bone, Rainer. 2013. Discourse conventions in the construction of wine qualities in the wine market. *Economic Sociology – European Electronic Newsletter* 14 (2): 46-53 <http://econsoc.mpifg.de/archive/econ_soc_14-2.pdf> (Accessed March 22, 2016).
- Diaz-Bone, Rainer. 2014. Methodological positionings and perspectives: Comparing economics of convention with the institutional logics approach. *Journal of Management Inquiry* 23 (3): 324-27.
- Diaz-Bone, Rainer. 2015. *Die “Economie des conventions”*. *Grundlagen und Entwicklungen der neuen französischen Wirtschaftssoziologie*. Wiesbaden: Springer VS.
- Diaz-Bone, Rainer. 2016. Convention theory and neoliberalism. Review essay of “William Davies. 2015. *The Limits of Neoliberalism: Authority, Sovereignty, and the Logic of Competition*.” *Journal of Cultural Economy* 9.
- Diaz-Bone, Rainer, ed. 2011. *Die Soziologie der Konventionen. Grundlagen einer pragmatischen Anthropologie*. Frankfurt a. M.: Campus.
- Diaz-Bone, Rainer, and Robert Salais. eds. 2011. Conventions and institutions from a historical perspective. Special Issue of *Historical Social Research* 36 (4) <<http://www.gesis.org/hsr/archiv/2011/364-conventions-institutions>>.
- Diaz-Bone, Rainer, and Robert-Salais. 2011a. The Economics of Convention and the History of Economies. Towards a Transdisciplinary Approach in Economic

- History. *Historical Social Research* 36 (4): 7-39 <<http://www.ssoar.info/ssoar/handle/document/36326>>.
- Diaz-Bone, Rainer, and Robert Salais, eds. 2012. The *Économie des Conventions* – Transdisciplinary discussions and perspectives. Focus of *Historical Social Research* 37 (4) <<http://www.gesis.org/en/hsr/archive/2012/374-the-economie-des-conventions>>.
- Diaz-Bone, Rainer, and Robert Salais. 2012a. The *Économie des Conventions* – Transdisciplinary discussions and perspectives. Introduction to the HSR Focus. *Historical Social Research* 37 (4): 9-14 <<http://www.ssoar.info/ssoar/handle/document/37966>>.
- Diaz-Bone, Rainer, Claude Didry, and Robert Salais, eds. 2015. Law and conventions from a historical perspective. Special Issue of *Historical Social Research* 40 (1) <<http://www.gesis.org/en/hsr/archive/2015/401-law-and-conventions>>.
- Diaz-Bone, Rainer, Claude Didry, and Robert Salais. 2015a. Conventionalist's Perspective on the Political Economy of Law. An Introduction. *Historical Social Research* 40 (1): 7-22. doi: 10.12759/hsr.40.2015.1.7-22.
- Didier, Emmanuel. 2016. Alain Desrosières and the Parisian flock. Social studies of quantification in France since the 1970s. *Historical Social Research* 41 (2): 27-47. doi: 10.12759/hsr.41.2016.2. 27-47.
- Didier, Emmanuel, and Jean-Jacques Droesbeke, eds. 2014. Hommage à Alain Desrosières. *Statistique et société* 2 (3).
- Dosse, François. 1999. *The empire of meaning. The humanization of the social sciences*. Minneapolis: University of Minnesota Press.
- Duncan, Otis D. 1984. *Notes on social measurement. Historical and critical*. New York: Russell Sage.
- Espeland, Wendy N., and Michael Sauder. 2007. Rankings and reactivity. How public measures recreate social worlds. *American Journal of Sociology* 113 (1): 1-40.
- Espeland, Wendy N., and Mitchell L. Stevens. 2008. A sociology of quantification. *European Journal of Sociology* 49 (3): 401-36.
- Eymard-Duvernay, François. 2004. *Economie politique de l'entreprise*. Paris: La Découverte.
- Eymard-Duvernay, François. 2009. L'économie des conventions entre économie et sociologie: l'homo conventionalis calcule et parle. In *Traité de sociologie économique*, ed. Philippe Steiner and François Vatin, 131-64. Paris: Presses Universitaires de France.
- Eymard-Duvernay, François, ed. 2006. *L'économie des conventions. Méthodes et résultats. Vol. 1: Débats*. Paris: La Découverte.
- Eymard-Duvernay, François, ed. 2006a. *L'économie des conventions. Méthodes et résultats. Vol. 2: Développements*. Paris: La Découverte.
- Eymard-Duvernay, François, and Emmanuelle Marchal. 1997. *Façons de recruter. Le jugement des compétences sur le marché du travail*. Paris: Métailié.
- Eymard-Duvernay, François, and Laurent Thévenot. 1983. *Investissements spécifiques et concurrence sur le marché*. Paris: INSEE.
- Eymard-Duvernay, François, and Laurent Thévenot. 1983a. *Les investissements de forme. Leur usage pour la main d'œuvre*. Paris: INSEE.
- Favereau, Olivier. 2008. The unconventional, but conventionalist, legacy of Lewis's "Convention". *Topoi* 27 (1/2): 115-26.

- Favereau, Olivier, and Emmanuel Lazega, eds. 2002. *Conventions and structures in economic organization. Markets, networks, hierarchies*. Cheltenham: Edward Elgar.
- Foucault, Michel. 1994. *The order of things. An archaeology of the human sciences*. London: Routledge.
- Foucault, Michel. 1995. *Discipline and punish. The birth of the prison*. London: Routledge.
- Fourcade, Marion, and Kieran Healy. 2013. Classification situations. Life-chances in the neoliberal era. *Accounting, Organizations and Society* 38 (8): 559-72.
- Godin, Benoît. 2005. *Measurement and statistics on science and technology. 1920 to the present*. London: Routledge.
- Guibert, Bernard, Jean Laganier, and Michel Volle. 1971. Essai sur les nomenclatures industrielles. *Economie et statistique* 20: 23-36.
- INSEE. 1981. *Les catégories socioprofessionnelles et leur repérage dans les enquêtes. Etudes méthodologiques*. Paris: INSEE (Archives et documents 38).
- Japac, Lilli, Frauke Kreuter, Marcus Berg, Paul Biemer, Paul Decker, Cliff Lampe, Julia Lane, Cathy O'Neil, and Abe Usher. 2015. Big data in survey research. AAPOR task force report. *Public Opinion Quarterly* 79 (4): 839-80.
- Latsis, John S. 2005. Is there redemption for conventions? *Cambridge Journal of Economics* 29 (5): 709-27.
- Lazega, Emmanuel, and Olivier Favereau. 2002. Introduction. In *Conventions and structures in economic organization. Markets, networks, hierarchies*, ed. Olivier Favereau and Emmanuel Lazega, 1-28. Cheltenham: Edward Elgar.
- Lewis, David. 1969. *Convention. A philosophical study*. Cambridge: Harvard University Press.
- Lyon-Caen, Antoine, and Joëlle Affichard. 2005. From legal norms to statistical norms. Employment policies put to the test of coordination. In *Social rights and market forces*, ed. Olivier de Schutter and Simon Deakin, 145-63. Brussels: Bruylant.
- Mayer-Schönberger, Viktor, and Kenneth Cukier. 2013. *Big data. A revolution that will transform how we live, work, and think*. London: John Murray Publishers.
- Nachi, Mohamed. 2006. *Introduction à la sociologie pragmatique*. Paris: Armand Colin.
- North, Douglass C., and Arthur T. Denzau. 1994. Shared mental models: Ideologies and institutions. *Kyklos* 47: 3-31.
- Orléan, André. 1986. Le rôle des conventions dans la logique monétaire. In *Le travail. Marchés, règles, conventions*, ed. Robert Salais and Laurent Thévenot, 291-38. Paris: Economica.
- Orléan, André. 1989. Pour une approche cognitive des conventions économiques. *Revue économique* 40 (2): 241-72.
- Orléan, André. 1999. *Le pouvoir de la finance*. Paris: Odile Jacob.
- Orléan, André. 2014. *The empire of value. A new foundation for economics*. Cambridge, MA: MIT Press.
- Penissat, Etienne, Cécile Brousse, Jérôme Deauvieu, Julien Chevillard, Emmanuelle Barozet, and Oscar Mac-Clure. 2016. From statistical categorizations to ordinary categorizations of social space: History and legacy of an original study based on a card game. *Historical Social Research* 41 (2): 135-177. doi: 10.12759/hsr.41.2016.2.135-177.

- Ponte, Stefano, and Benoit Daviron. 2005. Quality standards, conventions and the governance of global value chains. *Economy & Society* 34 (1): 1-31.
- Ponte, Stefano, and Timothy Sturgeon. 2014. Explaining governance in global value chains: A modular theory-building effort. *Review of International Political Economy* 21 (1): 195-223.
- Ponte, Stefano, Peter Gibbon, and Jakob Vestergaard, eds. 2011. *Governing through standards. Origins, drivers and limitations*. New York: Palgrave Macmillan.
- Porter, Theodore M. 1995. *Trust in numbers. The pursuit of objectivity in science and public life*. Princeton: Princeton University Press.
- Salais, Robert. 1998. A la recherche du fondement conventionnel des institutions. In *Institutions et conventions. La réflexivité de l'action économique*, ed. Robert Salais, Elisabeth Chatel and Dorothee Rivaud-Danset, 255-291. Paris: EHESS (Raisons pratiques 9).
- Salais, Robert. 2008. Economics of convention – its origins, contributions and transdisciplinary perspectives. Robert Salais interviewed by Rainer Diaz-Bone in Berlin. *Economic Sociology – European Electronic Newsletter* 9 (2): 16-23 <http://econsoc.mpifg.de/archive/econ_soc_09-2.pdf> (Accessed March 22, 2016).
- Salais, Robert. 2008a. Capacités, base informationnelle et démocratie délibérative. Le (contre-)exemple de l'action publique européenne. In *La liberté au prisme des capacités. Amartya Sen au-delà du libéralisme*, ed. Jean de Munck and Bénédicte Zimmermann, 297-329. Paris: EHESS (Raisons pratiques 18).
- Salais, Robert. 2012. Quantification and the economics of convention. *Historical Social Research* 37 (4): 55-63 <<http://www.ssoar.info/ssoar/handle/document/38001>>.
- Salais, Robert. 2013. *Le viol de l'Europe. Enquête sur la disparition d'une idée*. Paris: Presses Universitaires de France.
- Salais, Robert. 2015. Revisiter la question de l'État à la lumière de la crise de l'Europe. État extérieur, situé ou absent. *Revue française de socio-économie* 2: 245-62.
- Salais, Robert. 2016. Quantification and objectivity. From statistical conventions to social conventions. *Historical Social Research* 41 (2): 118-134. doi: 10.12759/hsr.41.2016.2. 118-134.
- Salais, Robert, Nicolas Baverez, and Bénédicte Reynaud. 1986. *L'invention du chômage. Histoire et transformations d'une catégorie en France des années 1890 aux années 1980*. Paris: Presses Universitaires de France.
- Salais, Robert, and Laurent Thévenot, eds. 1986. *Le travail. Marchés, règles, conventions*. Paris: Economica.
- Storper, Michael, and Robert Salais. 1997. *Worlds of production. The action frameworks of the economy*. Cambridge: Harvard University Press.
- Thévenot, Laurent. 1983. L'économie du codage social. *Critiques de l'économie politique* 23/24: 188-222.
- Thévenot, Laurent. 1984. Rules and implements: Investments in forms. *Social Science Information* 23 (1): 1-45.
- Thévenot, Laurent. 2001. Organized complexity. Conventions of coordination and the composition of economic arrangement. *European Journal of Social Theory* 4 (4): 405-425.

- Thévenot, Laurent. 2009. Governing life by standards. A view from engagements. *Social Studies of Science* 39 (5): 793-813.
- Thévenot, Laurent. 2011. Conventions for measuring and questioning politics. The case of 50 years of police evaluation through a statistical survey. *Historical Social Research* 36 (4): 192-217 <<http://www.ssoar.info/ssoar/handle/document/36321>>.
- Thévenot, Laurent. 2014. Voicing concern and difference: from public spaces to commonplaces. *European Journal of Cultural and Political Sociology* 1 (1): 7-34.
- Thévenot, Laurent. 2015. Certifying the world. Power infrastructures and practices in economies of conventional forms. In *Re-imagining economic sociology*, ed. Patrik Aspers and Nigel Dodd, 195-223. Oxford: Oxford University Press.
- Thévenot, Laurent. 2016. From social coding to economics of convention: A thirty-year perspective on the analysis of qualification and quantification investments. *Historical Social Research* 41 (2): 96-117. doi: 10.12759/hsr.41.2016.2. 96-117.
- Thornton, Patricia H., William Ocasio, and Michael Lounsbury. 2012. *The institutional logics perspective. A new approach to culture, structure and process*. New York: Oxford University Press.
- Timmermans, Stefan, and Steven Epstein. 2010. A world of standards but not a standard world. Toward a sociology of standards and standardization. *Annual Review of Sociology* 36: 69-89.
- Volle, Michel. 1982. *Histoire de la statistique industrielle*. Paris: Economica.
- Zerubavel, Eviatar. 1981. *Hidden rhythms. Schedules and calendars in social life*. Chicago: University of Chicago Press.