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Régulations agricoles et formes de mobilisation sociale

Regulation Theory and Transformation of Agriculture: a Literature Review

Théorie de la régulation et transformation de l'agriculture : une revue de la littérature

Teoría de la regulación y transformaciones de la agricultura : una revisión de la literatura

JEAN-MARC TOUZARD AND PIERRE LABARTHE

Résumés

English Français Español

The article is based on a literature review of research related to the French Regulation Theory (RT) and applied to agriculture and food. It analyzes the changes in this sector and proposes a new research agenda. In the first part we examine research findings embedded in RT in the 1980's and 1990's, focusing on the emergence and crisis of the economic regime of agriculture of industrialised countries during the fordist period. In the second part we show how this body of research continues the analysis of different dimensions of agricultural transformation, and progressively combines with other research programs. However, we argue that the new international context of agriculture and food is an opportunity to renew RT research on this sector and to understand its different economic regimes and their transitions in various national contexts.

L'article s'appuie sur une revue des travaux de recherche français inscrits dans la théorie régulationniste (TR) et appliqués à l'agriculture et l'agroalimentaire, pour analyser les transformations de ce secteur et contribuer à l'élaboration d'un nouvel agenda de recherche. Dans une première partie, nous rappelons les travaux d'une période fondatrice, au cours des années 1980 et 1990, centrée sur l'analyse de l'émergence puis de la crise du modèle agricole de la période fordiste. Dans une deuxième partie, nous montrons comment ces travaux, en poursuivant l'analyse des différentes dimensions des transformations agricoles et agroalimentaires, se sont ensuite combinés avec d'autres programmes de recherche. Pour autant, nous défendons l'idée que le nouveau contexte international de l'agriculture et de l'alimentation offre une opportunité pour relancer les travaux de la TR sur ce secteur et pour comprendre les régimes et les transitions agricoles dans différents contextes nationaux.

El artículo se apoya en una revisión de los trabajos de investigación inscriptos en la teoría regulacionista (TR) y aplicada a la agricultura y al sector agroalimentario, para analizar las transformaciones de este sector y contribuir a la elaboración de una nueva agenda de investigación. En una primera parte, nosotros recordamos los trabajos de un periodo fundacional, en el curso de los años 1980 y 1990, centrado en el análisis de la emergencia y luego la crisis de un modelo fordista en la agricultura. En una segunda parte, nosotros mostramos como esos trabajos, prosiguiendo el análisis de las diferentes dimensiones de las transformaciones agrícolas y agroalimentarias, se han combinado luego con otros programas de investigación. Por ello, nosotros defendemos la idea de que el nuevo contexto internacional de la agricultura y de la alimentación ofrece una oportunidad para volver a emprender trabajos de la TR sobre ese sector y comprender los diferentes regímenes de funcionamiento que están asociados en diversos contextos nacionales y sus transiciones.

Entrées d'index

Mots-clés : Théorie de la Regulation, Agriculture, Régimes agro-alimentaires, transitions, Revue de littérature

Keywords : Regulation Theory, Agriculture, Food regimes, Transitions, Literature review

Palabras claves : liberalización, políticas agrícolas, régimen político, recursos

Codes JEL : Q10 - General, B52 - Institutional; Evolutionary, O13 - Agriculture; Natural Resources; Energy; Environment; Other Primary Products, O33 - Technological Change: Choices and Consequences; Diffusion Processes

Texte intégral

Introduction

- 1 From an early stage, studies based on the French school of Regulation Theory (RT) used the sectoral scale to better understand the diversity of capitalism and its transformations (Boyer and Saillard, 1995). Agriculture and agri-food sectors were fields in which such sectoral approaches were developed (Boyer, 1990). They contributed, in particular, to forging the concept of economic regime at the sectoral scale (Bartoli and Boulet, 1990). The book edited by Gilles Allaire and Robert Boyer (1995) attests to the vivacity and perspective of these studies in the mid-1990s. Research on agriculture and the agri-food industry subsequently continued to refer to RT, opening new questions, for example with regard to environmental issues, regional development or new agricultural policies (Laurent and du Tertre, 2008). It highlighted the emergence of new economic regimes in the agricultural and agri-food sectors in a more liberal capitalist world. Yet these developments have not been fully synthesized.
- 2 The question that we raise in this article concerns the role of RT in such a synthesis and in a comparative analysis of economic regimes and their transitions in agricultural and agri-food sectors. The revival of political debates on the role of agriculture and food in society, along with recent food crises, justify the renewal of RT as a framework for investigating this sector.
- 3 We first examine RT's historical contribution to the analysis of agricultural sectoral regimes (Section 1) and the way in which this research has combined with other approaches in institutional economics, and also with other social sciences (Section 2). We then argue that the recent trends in the international context afford an opportunity to revive RT research on agriculture and food. Drawing on our own research and on a literature review, we open two perspectives for this purpose. We propose to better integrate RT's contributions into the analysis of transition studies of agriculture (Section 3) and into that of the diversity of agri-food models and food regimes (Section 4).

RT's historical contribution to the analysis of agricultural regimes

- 4 From the early 1980s (Perraud, 1985), the application of RT to the analysis of agricultural development in the post-WWII years strongly contributed to the establishment of a scientific fact (Fleck, 1980): the institutionalization of a specific sectoral regime of agriculture in industrialised countries during the Fordist period. At the time, the agricultural sector in these countries was experiencing unprecedented growth in terms of production and productivity. Agriculture was based on a technological paradigm oriented towards the quest for enhanced productivity through labour specialization and intensification (Allaire, 1988a). Agriculture was supported by national agricultural policies, and gradually integrated to market and to industrial firms, whether private or cooperative, supplying and buying from farmers. Economic analyses embedded in RT relied on the identification and specification of the institutional forms that allowed for the stabilization of this agricultural regime: forms of competition, wage and labor relations, role of the State, and international relations (Nefussi, 1987; Allaire, 1988b; Debailleul, 1990; Laurent, 1992). To this end, this research mobilized the methodological principles of RT: historical exploration, analysis of the evolution of macro-economic and structural variables; identification of the key institutions and underlying political compromises; and international comparison (France, USA). It was also interdisciplinary, through collaboration with sociologists, political scientists and agronomists.

1.1 From describing agriculture in the Fordist period (and its crisis) to a major contribution to the analysis of sectoral regimes

- 5 Initially the identification of the sectoral regime of agriculture in the Fordist period drew on the analysis of the institutional forms underpinning it. It relied on the “canonical” forms of RT used to analyse national economic transformations (Boyer, 1989) while calling into question their sectoral specificity.
- 6 Examining the wage and labour social relations, a key notion of RT, researchers sought to describe their specific evolution in the agricultural sector. These were characterized not only by certain general features of Fordism (specialization, intensification and simplification of work, creation of norms and standards, dependence on agro-industrial firms) but also by the permanence of family farms and the emergence of an organized farming profession with associated statuses (Allaire, 1988a, 1991; Lacroix and Mollard, 1990). Empirical studies were undertaken with sociologists to illustrate and examine the specific features of the labour social relations in agriculture (Lacroix *et al.*, 1995). They have shown how the institutionalization of a model of professional farms and farmers took place to the detriment of other forms of farming and social groups (Coulomb *et al.*, 1990; Laurent *et al.*, 1998).
- 7 Other research has focused on the role of the State, and on the institutionalization of compromises with social groups of farmers. In France, these compromises have been embodied in public policies based on joint management between the State and farmers’ unions. This form of “neo-corporatism” allowed for modernisation of agriculture by orienting access to productive resources to certain professional farmers. There were for instance a joint management, between the State and unions of professional farmers, of organisations controlling access to credit (role of the mutual agricultural credit¹, of bookkeeping associations²), to land (role of the SAFER³), and to knowledge (role of the chambers of agriculture). These institutional

arrangements participated in the regulation of the economic contradictions that crystallized around the distribution of the means of production (land, capital) and the definition of the publics targeted by the national agricultural support policies (Coulomb and Delorme, 1987; Allaire, 1988b).

8 Finally, the RT first studies on agriculture also focused on market institutions, the new forms of competition, and relations between supply and demand on a national and European scale, in relation to the emergence and then the evolution of the Common Agricultural Policy (CAP) (Bartoli, 1985). Beyond the decrease of the prices of agricultural products, that reflected the marketization and industrialization of agriculture in the national economy (Servolin, 1989), research explored i) the institutions and social compromises that allowed for the emerging quality-based differentiation of agri-food markets (Bartoli and Boulet, 1989) and ii) the evolution of relations between farmers and upstream and downstream firms (Chevassus Lozza *et al.*, 1999), involving various types of contract.

9 The development of such research rapidly challenged the possibility of transposing to a sectoral level the concepts of RT that were initially constructed on a macro-economic scale. Three risks were identified. The first risk lies in a homothetic transposition of macro-economic periodization at sectoral level, which would eliminate any sectoral specificity. The second risk stands in an overly functional point of view from which agriculture would be only considered in terms of its (partly specific) contributions to the national development model, such as providing workers. Conversely the third risk stems in a point of view of a sectoral dynamics that would be autonomous from global economic dynamic (Bartoli and Boulet, 1990; Boyer, 1990). These difficulties were shared with empirical research carried out in other sectors, notably the car industry (Boyer and Freyssenet, 2000). Research on the agricultural sector contributed significantly to theoretical reflection on sectoral regimes, using the example of wine in particular (Bartoli and Boulet, 1990). It spawned generic concepts, a method, and an approach to sector-based economic analysis (Boyer, 1990). Bartoli and Boulet's work thus formalized the notion of sectoral economic regime, that is, "*the economic mechanisms that enable the reproduction of the sector*", and that of sectoral "institutional arrangements", that is, *all the institutions that produce the norms, processes and interventions framing and orienting actions and economic flows at the sector level* (Bartoli and Boulet, 1990: 19). The articulation between sectoral dynamics and the national development model was then envisaged in a less mechanical way, by reasoning in terms of the constraints and opportunities afforded by national models, and the repercussions that sectors had on macro-economic dynamics and its institutions. The first analysis of coexistence between diverse economic regimes within agriculture (e.g basic wine vs quality wines) also contributed substantially to shape a more comprehensive view on this articulation.

10 The first studies undertaken within the RT framework also examined the crises and transformations of the sectoral regime of agriculture institutionalised during the Fordist period. Several aspects of the crisis were already evidenced in the 1980's: market crises; over-production and first amendments of the CAP (milk quotas, subsidies for removing vineyards, etc.); political protest and emergence of alternative agricultural systems (e.g organic agriculture); and so on. The analysis of these developments also showed that the emergence of new societal issues was being taken into consideration in the political arena in Western European countries (Laurent, 1992; Allaire and Boyer, 1995; Touzard, 1995; Nieddu and Gaignette, 2000), on the North American continent (Debailleul, 1990) and in countries of the South (Losch, 2000; Bosc and Losch, 2002; Anseeuw, 2004). The book *La grande transformation de l'agriculture* by Allaire and Boyer (1995) was a major attempt to synthesize RT and institutionalist studies describing the growth and crisis of agriculture in the post-fordist period. The research gathered in this book signalled both the rise of

these new issues and the attendant economic and political processes: the construction of new qualities of food products; the evolution of labour relations in farm households; the growing complexity of agricultural policies; agriculture's relations with regional development and environmental issues; and so on. By stressing the co-existence of a plurality of forms of agriculture positioned differently with regard to these issues, and the collaboration that needed to be strengthened within institutionalist approaches to capture these trends, the book opened a new research agenda on promising perspectives for RT research on agriculture.

1.2 An extension of research to different dimensions of the great transformation of agriculture

- 11 Subsequent to the publication of this book (and many seminars and discussions on the topic), researchers inspired by RT undertook diverse in-depth explorations of the various dimensions of agricultural and agri-food transformations. These studies extended, deepened and completed earlier work.
- 12 Research on the organization and social relations of labour continued to highlight the particularities and evolution of the farming profession (Laurent, 1995; Lacombe, 1998; Mundler and Laurent, 2003), taking into account the tension between the tasks specialization and the “non-agricultural” work in farm households. The analysis was broadened to the “systems of activity” (Laurent *et al.*, 1998), seen as a component of the diversity of agricultural models. It contributed to the understanding of institutional arrangements framing the sector, and of their crisis (Delord *et al.*, 2000).
- 13 The analysis of the forms of competition and market organisation focused primarily on the question of the quality of agri-food products, and on its central role in the definition of various sectoral regimes (or quality regimes) and the differentiation of markets (Boulet and Touzard, 1995; Allaire and Sylvander, 1997; Allaire, 2002).
- 14 The economic analysis of public support for agriculture showed the importance of the articulation of the various scales of public action: European, national and regional (Delord *et al.*, 2000; Delorme, 2002; Berriet-Sollic, 1999). It highlighted the growing role of regional institutional arrangements in the dynamics of the sector (Genieys and Smith, 2001).
- 15 The insertion of agriculture in local or regional development dynamics thus constituted a new field of study that facilitated the understanding of intra- and inter-sectoral mechanisms of coordination, as well as the conditions of emergence of alternative forms to the dominant agri-industrial development model (Touzard, 1995; Laurent, 1995; Pecqueur, 2001; Nieddu and Gaignette, 2000; Gilly and Wallet, 2005).
- 16 The relations between agricultural activities and environmental issues were also a new direction for research. They showed the importance of new social compromises about nature and environmental issues, and suggested that agriculture was taking on an important role in the emergence of a political ecology (Lipietz, 1995; Le Roch, 1993; Lacroix *et al.*, 1995; Becker and Raza, 2000; Barthelemy and Nieddu, 2003).
- 17 The question of innovation and the construction of knowledge in the agricultural and agri-food sector was also studied specifically in reference to RT. Researchers sought to further understanding of the processes of technological change in the sector and to critically examine the evolution of agricultural development institutions (Byé, 1997; Touzard, 2000; Allaire, 1996).
- 18 There has also been growing interest in agricultural transformations in other countries than France, evidenced mainly in various PhD theses, particularly in Latin

America, Europe and North America (Lopez, 2006; Goodwin *et al.*, 1995; Quemia, 2001; Trouvé, 2007; Labarthe, 2006; Grouiez, 2010; Lataste, 2014), as well as several studies on African economies (Hugon, 1993; Chastel, 1995; Griffon, 1994; Losch, 2000; Marzin, 2006; Anseeuw, 2004).

19 In this abundant literature, it seems that two dimensions have played a particularly important role for RT. First, a growing body of research on the transformations of agri-food systems and agricultural regimes has analysed new issues around product quality (organoleptic, sanitary, environmental, origin-related quality, *etc.*) and new forms of organization of production. It has contributed to integrating a systemic vision and exploration of the diversity of agri-food models and agricultural innovation systems (Touzard *et al.*, 2014). Second, the integration of the territorial dimension into RT has been another significant development, focusing on local conditions of agricultural crisis and integration of agriculture in regional governance (Berriet *et al.*, 2006). It has led to very rich academic debate associated with the new contradictions between the sectoral and territorial implications of agriculture that appear when the multiplicity of objectives associated with agriculture are recognized (Laurent, 1995). These studies were discussed and developed within the French RT scientific community, particularly at INRA (French National institute of agricultural research) and the CIRAD (French Agricultural research for development), as well as through the working group “*Régulation sectorielle et territoriale*” (Laurent and du Tertre, 2008). Interaction grew between RT research in agriculture and in other industrial or service sectors.

20 In the 1990’s, RT research applied to agriculture developed with a view to accounting for the profound crises and shifts taking place in the agricultural sector, particularly in France. These crises related to the upsurge of problems of over-production and competition, and to those concerning the environmental, sanitary and social consequences of the intensification of agricultural production. Yet no consensus emerged through this research, around a new sectoral regime of agriculture and a solution to the crisis. It is surprising that research stemming from RT does not play a bigger role in today’s academic debate on the identification of these new economic regimes of the sector, notably for purposes of international comparison.

2. Comparisons and combinations of RT with other research programmes analysing transformations of agricultural regimes

21 A particularity of RT is that its development takes partially place through exchanges with other institutional economics research programmes and other social sciences. The development of RT research applied to agriculture is a typical illustration.

22 Studies referring to RT to analyse the organization and social relations of farm labour were close to approaches in rural or critical sociology, and to systemic agronomy (farming systems, livestock breeding systems). This collaboration was extended (Mundler and Laurent, 2003; Malderieux *et al.*, 2010), and helped i) to stabilize the generic notion of social relations of activity (Laurent and Mouriaux, 2008) and ii) to explore the new development of firm farms⁴ in France (Olivier-Salvagnac and Legagneux, 2012) and Latin America (Requier-Desjardin *et al.*, 2014)

23 Research on the regimes of “specific quality” products was associated with the dynamics of other approaches, particularly the convention theory or economic

sociology (Boulet and Touzard, 1995; Allaire and Sylvander, 1997; Chiffolleau *et al.*, 2008; Karpik, 2007; Allaire and Daviron, 2008; Allaire, 2010; 2013). Internationally, they coincide with studies in political science (Bonanno and Busch, 2015), especially on quality audited supply chains and international negotiations over food standards (Friedman, 2005).

24 Research on agricultural policies, rural development, and European policy (Berriet-Sollicet *et al.*, 2008; Labarthe, 2005; Trouvé, 2009) has woven collaborative relations with political science approaches (Smith *et al.*, 2007; Schuckmith, 2010). They contributed to better understand the construction of these policies, according to new compromises, which include new social groups (consumers, NGO, different bureaucracies...).

25 The evolution of agriculture in territorial dynamics has been a subject of new research related to the economics of proximity (Pecqueur, 2001; Pecqueur and Zimmerman, 2004; Gilly and Wallet, 2005), rural sociology and geography, and to research on localized agri-food systems (Muchnik *et al.*, 2007; Albaladejo, 2012). They completed the analysis of agricultural transformation at a local scale, and provided empirical evidence of new territorial governance of agriculture, especially driven by regions, cities or some actors of the tourism sector (Torre and Filippi, 2005).

26 RT studies on more recent topics relating agriculture to environmental issues, ethics or innovation have likewise involved collaboration with other programmes: sustainable development and ecological economics (Zuindeau, 2007), evolutionary theory and transition approaches (Nieddu *et al.*, 2010; Labarthe, 2010; and even history and law (Tordjman, 2008). These collaborations converge in highlighting the renewal of agricultural sectoral specificities, as far as innovation systems, provision of public goods or professional knowledge are concerned (Touzard *et al.*, 2014).

27 The encounter between RT-based approaches and other institutionalist approaches or even other disciplines has unquestionably been of great heuristic value in the understanding of transformations of agriculture. Conversely, the agricultural sector has been a breeding ground for empirical research that has contributed to developing or clarifying new concepts for RT (sectoral regimes, quality regime, social relations of activity, territorial governance, etc.). These studies have however not led to the elaboration of a new synthesis that might serve to characterize or to map new sectoral regimes of the agricultural sector, from a more global, historical and comparative perspective.

28 There are various possible explanations for this situation. Some concern the specific, internal dimensions of RT, particularly the need to combine this approach with others in order to connect micro-economic to meso- or macro-economic analyses. RT provides a general framework anchored in macro-economics, which can be applied to meso-economic approaches. This framework encourages one to use advances from other theoretical approaches that are better equipped from a micro-or meso-economic point of view, but provide no guarantee of a systematic return to RT to finalize a more synthetic approach. The operational dimension has also been mentioned. The analytical and particularly retrospective contributions of RT have been widely recognized, but the predictive, normative or even maieutic nature of RT is a subject of debate. The fact that RT is based on sound empirical work (statistics, case studies) is not challenged, but its operational use is (Pecqueur, 2007; Favereau, 1995). One reason may also lie in the difficulty of organizing international comparative studies on (national) agriculture and agri-food systems. Attempts have nevertheless been made in this respect (especially in PhD research, for example Anseeuw, 2004; Labarthe, 2006; Trouvé, 2007; Grouiez, 2010; Lataste, 2014). There have been various international partnerships and RT has been used by international scholars beyond France (Marsden, 1992; Gibbs, 1996; Wilkinson, 1997). But a collective effort for a synthesis still lacks. This situation also relates to the

institutional constraints and power relations that have become less favourable to RT in the academia of economics. Geographical dispersion and the small number of researchers working on agriculture and RT explain this, and the difficulties of recruiting new researchers and securing resources for institutional economics are very real.

29 The purpose of this article is however not to explore in detail the reasons for these trends. Instead, we would like to draw on our personal research experience to propose two avenues for strengthening RT's contribution to the analysis of the diversity of agriculture and agri-food systems. We believe that, to this end, it is necessary to reinforce the integration of RT approaches in international and pluri-disciplinary communities, and so to foster a synthesis within RT. In the following two sections we present two lines of research that, from our point of view, call for a contribution by RT to comparative exercises and syntheses of agricultural economic regimes: one concerning ecological transitions, and the other, food regimes and agri-food models. We believe that RT's participation in these syntheses would enhance the analyses carried out in these multidisciplinary communities. In turn, RT could benefit from debate within these communities, essentially to continue the characterization of institutional forms that bring to the fore the core mechanisms of sectoral regimes (on the economic mechanisms of access to knowledge, on that of quality standards, etc.). It could also help combining the micro-, meso-, and macro-economic scales in this analysis.

3. Strengthening RT's contribution to international research on ecological transitions

30 As noted in the preceding section, RT research has highlighted the environmental dimension of the crises faced by agriculture in industrialized countries since the late 1980's. The analysis of agricultural and agri-food systems' transitions towards a better integration of societal issues, including environmental ones, is therefore an important research thrust for RT and, more broadly, for institutionalist approaches. This is evidenced in the current development of the Ecological economics community (Plumecocq, 2014).

31 Since the early 2000's there has been an upsurge of research on ecological transitions. This movement did not stem predominantly from economics; instead it has been driven by political science and the Science and technologies studies (STS). Some authors have proposed a multi-level framework, including "niches", where ecological innovations appear, and "socio-technical systems", where a sectoral regime that integrates these innovations (or not), is institutionalized (Geels, 2002). The starting point of these approaches lies partially in a critique of the lack of integration of the demand side into former approaches in terms of sectoral systems of innovation (Geels, 2004), embedded in the field of innovation economics, and notably evolutionary economics (Malerba, 2002). Transitions studies thus incorporate new modalities of social construction of food product quality and of innovation (Geels, 2010), and highlight new forms of technological and institutional lock-in (Vanloqueren and Baret, 2009).

32 Yet these transition studies have also been criticized (Bui, 2015), notably for their conceptualization of the socio-technical regimes, where innovations' support is institutionalized (Berkhout *et al.*, 2004; Genus and Cole, 2008; Markard and Truffer, 2008; Holtz *et al.*, 2008). Criticisms highlight the lack of analysis of the role of certain actors (firms, intermediate organizations, etc.) in transitions, and potential conflicts between these actors (Smith *et al.*, 2005; Shove and Walker, 2007; Genus

and Cole, 2008). Transition studies therefore leave a blind spot around the mechanisms regulating access to the resources needed for the transitions. RT research can play an important part in that respect, by making it possible to analyse the institutions shaping this access. For instance, the conditions of access to relevant and reliable knowledge for different actors of the agricultural sector (farmers, advisors, researchers, policy makers) has direct consequences on the speed and direction of technological change (Landel, 2015; Laurent *et al.*, 2010, 2012).

33 In other words, RT research could better contribute to debates around ecological transitions, by analysing how the institutional arrangements between different social groups regulate access to certain resources (and notably access to knowledge), and can in turn facilitate or, on the contrary, impede transitions (Labarthe, 2009): “*the economic performance of a technical system depends heavily on societal factors [...]: they are institutionalized compromises that define socio-technical trajectories marked by phenomena of reversibility and irreversibility*” (Boyer, 1989). This could contribute to renew the dialogue between RT and other heterodox approaches, notably evolutionary economics (Dosi and Coriat, 1995), about the analysis of path dependency and lock-in mechanisms (Boyer *et al.*, 1991).

34 In return, this participation of RT in debates on transitions could contribute to the collective effort needed to adapt the conceptualization of RT’s institutional forms to contemporary transformations of the economic regimes of sectors such as agriculture. The canonical institutional forms of RT, or the concepts derived directly from it, still have a high heuristic value for enriching our understanding of transformations underway in agriculture. They constitute one of the methodological bases of RT that we have to develop further collectively, in order to analyse new components of contemporary capitalism and sectoral regimes (Petit, 1998).

35 It therefore seems necessary to continue the analysis of social relations related to labour in the agricultural sector, in view of the profound changes taking place: radical decline in the number of farms; increase in the share of salaried work in agricultural employment, with a growing proportion of migrants (Laurent, 2013; 2015), new forms of collective organization of work or of integration of services in agriculture (Nguyen and Purseigle, 2012), evolution of competences and qualifications related to new technologies or the demands of food industries (e.g. managing traceability), and so on.

36 Likewise, the role of the State has changed profoundly, with forms of public intervention consisting less in direct investments in the sector and more in regulation with standards (on the environment, health, *etc.*) or in the strengthening of capacities and coordination at local and regional level (e.g. promotion of partnerships and platforms for innovation or commercialization). These policies correspond to new forms of institutionalized compromises between farmers, land owners, environmental organizations, local/regional authorities, and the State. They differ from one country to the next and can come into conflict with one another in European policy making (Trouvé and Berriet-Sollic, 2010; Lataste *et al.*, 2012).

37 The analysis of new forms of competition is also at the heart of transformations of farming. This is due to the rapid development of new quality criteria, particularly with regard to sanitary concerns (Saulais, 2015), and to the transformation of international regimes, with the upsurge of new actors in the demand (e.g. China; Chaumet and Pouch, 2012), the supply (e.g. Brazil, Fèvre and Pouch, 2013), storage (e.g. China; Courleux and Depeyrot, 2014), or in agricultural land grabbing (Anseeuw *et al.*, 2013), especially by large multinationals.

38 Greater participation in debates on transitions could enhance the theoretical debates within RT about the articulation between the micro-, meso- and macro-economic levels (Lamarche *et al.*, 2015). This articulation is at the heart of the multi-level perspective approach proposed by transitions studies (Geels, 2002). These studies also provide an interesting framework for building collaborations (with

forums, seminars, working groups, research projects, *etc.*) and maybe new scientific alliances at the international level to undertake historical studies and international comparisons – approaches that lie at the heart of RT. Research applied to agriculture has already explored the potential of this approach, for instance in the case of the development of green chemistry (Nieddu and Vivien, 2015, 2016). These debates constitute an opportunity for RT-based research to pursue the analysis: i) of the crisis of the intensive agri-industrial model; ii) of the deployment of a new alliance between science and capitalism (new doctrines around public-private partnerships for innovation, *etc.*); iii) of the development of alternative production systems or even lifestyles.

- 39 Another possible, complementary way to accentuate and enrich the contribution of RT to the analysis of agricultural regimes is to reinforce the dialogue with approaches and debates in terms of agri-food models and food regimes.

4. Strengthening the contribution of RT to the analysis of the transformation of agrifood models and food regimes

- 40 RT – or similar – studies on the transformation of agriculture show an overlap between spaces of regulation and those of transition, with the maintenance of the national level and the importance of international dependences, revealed by the food crisis in 2007-2008 (Touzard, 2009). They also point out the confrontation of various economic regimes and “models”, at least alternative vs conventional (Goodman *et al.*, 2012), within the agri-food sphere, both in the North and in the South (Allaire and Daviron, 2008). The better integration at the global scale of national regulations, international relations and diversity of models could be enriched by two concepts: “agri-food models” and “food regimes”.

- 41 Agri-food models refer to the observation of regularities and consistencies in patterns of production, trade and consumption of food, according to structural and cognitive principles. They have been proposed by early research on “food systems” (Malassis, 1979), by RT research on economic regime (Touzard, 2009) or by conventionalist works integrating consumption models (Fonte, 2002) or conventions on food quality (Ponte, 2016). A characterization of agri-food models has been proposed, based on the RT method and on research on the economy of quality, derived from conventionalist approaches (Fournier and Touzard, 2014). Whether these models stem from the persistence of a diversity inherent to agriculture or from the fragmentation of the former agro-industrial model, they stand out for their specific combinations between i) economic dynamics and logic, ii) institutional arrangements already recognized by RT (organization of work, form of competition, relation to the State), and iii) their specific relations and conventions on technology, territory and, above all, food quality, that has been ought to be integrated more fully into RT.

- 42 The *agro-industrial model*, based on the logic of profit maximization for agri-industrial firms and retailers, aims primarily at homogeneity and low costs for mass consumption, promoting market and industrial conventions on food. It still prevails, through two variants (Rastoin and Gherzi, 2010): i) a model that integrates family agriculture into agri-food firms (both upstream and downstream), and that can benefit from sustained government support and the influence of corporatist organizations formally controlled by farmers; and ii) a wage and financial agri-business model that was reaffirmed in North and South America (Wilkinson, 2002) around GM maize and soy, wheat, sugar cane and the pursuit of food industrialization, and in Russia after decollectivization (Grouiez, 2013). It is also

being revived in Europe (*e.g.* in intensive breeding) and in Africa with land grabbing and agri-industrial complexes (Anseeuw *et al.*, 2013).

43 In interaction with this agro-industrial model, several others appeared to be renewed heritages from earlier models. The *domestic model*, built around food consumption at the level of the family unit of production and transformation, still provides the subsistence of a large proportion of the population in southern countries. It is also being revived in both North and South, including in urban areas (family or community gardens, urban agriculture, *etc.*). The *proximity model* is characterized by few intermediaries (short supply chains, direct selling, *etc.*) and direct contact between producers and consumers, building trust through domestic and market conventions. It is being renewed in countries of the North in local food supply chains and over longer distances via information and communication technologies (ICT). The *artisanal commodity model*, which for a long time enabled the trading of food products over medium distances owing to trade networks with many intermediaries, is still very much present in countries of the South.

44 Research in the economy of quality has above all highlighted the affirmation of *differentiated quality models*, based on economic regimes that combine higher costs and prices, on institutions that guarantee the product's attributes (signs of quality), and on specific conditions of consumption (social differentiation, festive or cultural conditions). These models have actually existed in various forms for a very long time, but have received extensive media coverage due to their critique of the agri-industrial model and their claim to better meet certain societal challenges concerning agriculture and food (Colonna *et al.*, 2013). The *origin based model* is thus promoting the differentiation of quality according to origin, and the value attributed to the heritage of a place, like products under Geographic Indications. The original economic regime of this model relies on a set of institutions and conventions that links a community to the geographical space and its public goods (Belletti *et al.*, 2015). The *naturalist quality model* highlights practices (agricultural, post-harvest) that respect the environment and that the organic or agro-ecology supply chains claim to use. The *ethical quality model* groups together products differentiated in terms of respect for an ethic, whether it be social, religious or community. It generally displays support for a category of people (small farmers or disabled farmers, for example).

45 The coexistence of these models in most countries calls into question sectoral approaches to regulation, essentially by examining their articulation on a national and international scale. It is *de facto* the generalization of this coexistence that seems to be a current feature of globalization, and that invites us to put RT back at the heart of our analysis of the various regimes regulating agriculture. On this global scale, two antagonistic movements play a major role: a "market liberalization" and disengagement of the State movement that leads to a commoditization of agriculture and food (desectorialization); and a movement of political reinvestment in value chains and in different negotiation arenas (from local to international), which can lead to the reassertion of the sectoral particularity of agriculture on a global scale. Thinking and analysing these trends together in the framework of RT requires us to take into account principles that, on an international scale, ensure compatibility between activities of production, exchange and consumption of food, and thus the co-existence of agri-food models. The notion of food regime, derived essentially from the work of Friedman and McMichael (1989), seems to be useful here.

46 The food regime approach is above all an historical approach aiming at linking the international relations on production, exchange and consumption of food, with the evolution of the forms of capitalism, underlying the role of hegemonic (global) actors. Beyond recent debates between McMichael, Bernstein and Friedman (McMichael, 2009; Friedman, 2016), the food regime approach contributed to identify three food regimes during the two last centuries. We argue that this approach confronted to RT

is also useful i) to understand the coexistence (and contradictions) of various sectoral regimes and agri-food models at international scale, and 2) to explore scenarios for agriculture and food transition at this scale.

47 After the *colonialist food regime* (1870-1914), the food regime of the Fordist period has been called either *mercantile-industrial* or *state regulated* (Friedman 2005). It can be characterized ex-post by international markets steered by States (GATT, use of food as a weapon, national or regional sectoral regulations, the CAP, etc.) under the US hegemony, coupled with the promotion of the intensive agricultural development model (the green revolution) and the development of mass food consumption (industrialization, urbanization, standardization, concentration, etc.) progressively benefiting to agri-food multinational firms. It led to more regional specialization of agricultural production, while maintaining overall the modernization of family farming within a diversity of agri-food models, dominated by the state regulated agri-industrial model. Sectoral particularities, oriented by national agricultural modernization policies, were affirmed overall.

48 The evolution of this regime has led to a *corporate and environmental food regime* (Friedmann 2016) driven by multinational firms developing in a neoliberal and media form of capitalism (Allaire and Daviron, 2008). This new regime developed from the end of the 1970's and was characterized by the withdrawal of States, a financiarization of agri-food markets, a political economy of standards driven by multinational firms' strategies, partially integrating some environmental issues (Loconto and Fouilleux, 2014; Fouilleux and Goulet, 2012). This regime was also characterized by the growing importance of ICTs and the promotion of new biotechnologies, under a more fragmented world in terms of political control (emerging of new countries in the global food market, such as Brazil, China...). The 2008 crisis showed the limits of this food regime and triggered many debates on agri-food models and the possible ways in which the international food regime might evolve: 1) the pursuit of the *corporate and environmental* regime strengthening the private management of commodities (partially framed by public safeguards set up on a global scale), the development of "global value chains" targeted at various quality standards, and a new agrarian capitalism; 2) the emergence of a *civic food regime* around international negotiations between governments, firms, the scientific community and social movements, that recognize the diversity of agri-food models, their possible contributions to public goods, the legitimacy of a national or regional food sovereignty, and the importance of agro-ecology and local know-how; 3) the "return" to more fragmented international regulation that gives back a role to the State (bilateral agreements between States, negotiation between State and multinational firms, protectionism, etc.), with a diversity of trajectories and combinations of agri-food models, according to the national policies (and the hegemony of China?).

49 The analysis of agri-food models and their place in different international food regimes also points to the need to reconsider the question of the particularities of the agri-food sector, with regard to the global trends of capitalism and other sectoral dynamics. It is necessary to identify those trends that express a global convergence and those that seem to renew the bases of sectoral particularities. This issue result from both recent debates on food regime (Friedman, 2016 ; Bernstein, 2016) and discussion on agri-food models (Touzard et al., 2014). The general transformations of the "work relationship" or "activity relationship" in agriculture, the mediatization and accountability of the food supply chains, the weakening of national agricultural policies, the financiarization of activities and development of territorial governance, *inter alia*, are all features that are generally shared with the other sectors. At the same time, the basic characteristics of agricultural and agri-food activities (dependence on bioclimatic resources and risks; inherited family productive structures; importance of local knowledge; cultural or symbolic dimension of foods;

etc.) maintain a series of specific problems and challenges (Touzard *et al.*, 2014) and are an incentive for the maintenance or emergence of particular institutional arrangements such as the construction of “alternative agri-food systems” or negotiations on the “environmental services” of agriculture (Aznar *et al.*, 2007; Zuindeau, 2007). It is in the combination of these structural characteristics (which are never entirely exclusive to the sector) that an agri-food particularity can be renewed, one that is affirmed to a greater or lesser degree, depending on the agri-model considered.

Conclusion

50 Studies in the French RT tradition have contributed substantially to stabilizing the notion of economic regime on a sectoral scale. A period of fruitful RT-based research on agriculture, from the early 1980's, led to an attempt in the mid-1990's to synthesize it (Allaire and Boyer, 1995). This made it possible to characterize the economic regime of agriculture in industrialized countries during the Fordist period, and then the different dimensions of the crisis into which this sectoral regime was entering. More and more studies on agriculture then focused on these different dimensions during the 2000's. They were characterized by a proliferation of interaction with other currents of thought, not only in institutionalist economics (convention theory, evolutionary economics, etc.) but also within other social sciences (sociology, political science, etc.), on a diversity of research trajectories. Yet in this period no new collective attempt was made to synthesize this work and characterize, within RT framework, the evolution of economic regimes occurring in the diversity of national agricultural and agri-food sectors and in a context of globalization and liberalization of trade. In this article we argue that the current context of agriculture and food affords opportunities, precisely, to revive that effort to produce a collective synthesis that articulates research on several scales, taking into account a diversity of agri-food models and critically examining the mechanisms of their transitions towards an integration of the environmental challenges.

51 In this article we have proposed two possible and complementary routes for integrating RT into efforts at international level to synthesize the diversity of economic regimes in agricultural and food sectors. The first route consists of a better inscription of RT in multidisciplinary debates on ecological transitions. These debates afford an interesting possibility for multi-level integration of the analysis of institutional forms that support economic regimes. The second route consists of dialogue between research set in RT and that which characterizes the diversity of agri-food models and the evolution of food regimes on a global scale. In both cases, the conceptual underpinnings of RT retain a high heuristic value to contribute to a better understanding of economic regimes and their transformations, by emphasizing certain institutional forms and the dynamics of institutionalized compromises between various groups of actors. In return, the research communities working on transition studies or food regimes, with the richness of their debates, networks and projects, largely focused on comparative and historical analyses, allow for a combination of analyses at micro-, meso-, and macro-economic level. They could provide fruitful and reciprocal alliance for the further development of RT.

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Notes

1 *Crédit Agricole*

2 *Centre d'Economie Rurales*, farmers based organisations specialized in bookkeeping and economic advisory services.

3 *Sociétés d'aménagement foncier et d'établissement rural*.

4 Olivier-Salvagnac and Legagneux (2012) characterize firm farms as farms of big economic size, with specific legal forms that allow for investments from outside the farm household. This farms tend to rely on farm employees and/or on contract farming.

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