SMART-LERECO

2013

Research Highlights

SMART-LERECO is a research team as defined by the French Evaluation Agency for Research and Higher Education (AERES). It is made up of the INRA – Agrocampus Ouest Joint Research Unit on "Agricultural and Market Structures, Resources and Territories" (UMR 1302 SMART) based in Rennes and the INRA "Economic Research and Studies Laboratory" Research Unit (UR 1134 LERECO) based in Nantes.

Research Highlights looks back over the year's main achievements in terms of research findings, participation in setting up research projects and programmes, decision-making assistance and knowledge transfer activities in our partnerships with academic research and higher education bodies and/or with public and private agriculture players (French ministries, European institutions, international organisations, extension services, professional agricultural organisations, etc.).

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Management
Pierre Dupraz, Director
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Key figures for 2013

- 33 research and academic staff
- including 13 accredited PhD supervisors
- 17 assistants, technicians and administrative staff
- 10 PhD students
- 26 scientific articles in peer-reviewed journals
- 10 research and expertise reports
- 2 PhDs defended
- 13 working papers
- 18 scientific seminars

Decision-making assistance

European competitiveness

A study of the competitiveness of European Union (EU) member countries, commissioned by the European Commission's Directorate-General for Trade, was conducted in co-operation with researchers from CEPII (Paris, France) and WIIW (Vienna, Austria). The report analyses changes in the EU's external competitiveness, taking account of new developments with the analysis of Global Value Chains and disentangling the contribution of structural drivers (prompting specialisation in products and destinations) and pure competitiveness. The analysis draws on highly disaggregated trade data, grouping sector trade flows by price range and by the products' technological content. **The EU has withstood competition from emerging countries better than the United States and Japan**, although its competitiveness has deteriorated since the recent global financial crisis. EU market share has proved particularly resilient in high-tech products and in the upper price range of the market.

Find out more:

Cheptea A., Fontagné L., Zignago S. (2014). European export performance. *Review of World Economics*. 150(1): 25-58.

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Research findings

Award

The Board of the European Association of Agricultural Economists (EAAE) has decided to recognise the work of SMART-LERECO members by awarding them **the Outstanding European Review of Agricultural Economics Journal Article Award 2012** for their paper on French exporters' access to European agri-food markets. Drawing on recent international economics developments in the analysis of firm behaviour at individual level, the paper sought to improve our understanding of the determinants of firms' exports to a given country, taking into account two export components: the decision to export and the volume exported.

Find out more:

Chevassus-Lozza E., Latouche K. (2012). Firms, markets and trade costs: Access of French exporters to European agri-food markets. *European Review of Agricultural Economics*. 39(2): 257-288.

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Knowledge transfer

"Macroeconomics of Agriculture and Development" Workshop

The relationship between agriculture and development and food security is again on top of the global agenda. Accordingly, in November 2013, SMART-LERECO held **a two day-workshop on in-depth issues relating to macroeconomics of development applied to agriculture.** Two keynote speakers took part: François Bourguignon (Paris School of Economics, former Chief Economist and Senior Vice President at the World Bank) and Eugenio Diaz-Bonilla (economist at IFPRI in Washington DC). A total of 65 participants attended the five-session workshop, which presented and discussed 14 papers. This scientific event was supported by Rennes Métropole, the Brittany Region, Agrocampus Ouest, INRA, the French Research National Agency, CNRS and the SHOS doctorate school. The workshop is designed to strengthen cooperation between national and international research centres at research and educational levels.

Find out more:

https://colloque.inra.fr/smart-mad

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Research findings

Agri-food industry location choices

Four location paradigms provide a better understanding of **why firms in the poultry and processed food sectors locate to West France**. Depending on the firm's ownership, two types of governance are highlighted concerning the creation and development of a territory. The results also shed light on some internal firm factors and the firm's involvement in local development, both of which are liable to influence the relocation decision.

Find out more:

Persillet V., Lambert A. (2013). Comportements d'ancrage territorial des entreprises industrielles : le cas des industries de la volaille et des plats préparés dans les régions de l'Ouest de la France. *Économies et Sociétés*. 11-12: 3022-2032.

Persillet V., J. S. Shonkwiler (2013). Determinants of firm relocation: A study of agro-food processors. *Working Paper SMART-LERECO No. 13-08*.

Contact: vanessa.persillet@nantes.inra.fr

Partnership

Partnership with Crédit Agricole

The partnership between Crédit Agricole en Bretagne and Agrocampus Ouest officially created the 'Enterprises and Agricultural Economics' (EEA) chair in September 2013. The chair promotes discussion and co-construction to develop high-level education and research activities. SMART-LERECO is central to this partnership, hosting the supervision of an entirely chair-funded PhD thesis on structural farm change in Brittany launched in October 2013. In the spring of 2014, SMART-LERECO will also supervise a six-month Agrocampus Ouest engineer training course on farm handovers.

Find out more: http://tinyurl.com/p5s7vos

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Research support

Marie Curie Intra-European fellowship

Angela Cheptea, researcher at SMART-LERECO, was awarded a Marie Curie Intra-European fellowship by the European Union for a post-doctoral visiting research position at the Institute of Applied Economic Research (IAW) in Tübingen, Germany. She will investigate **the role of multinational retail chains in international trade**. There are two main research questions. The first is to whether overseas retail chain expansion affects the exports of firms from the retailer's country of origin, due to lower export costs for the domestic suppliers of these multinationals and changes to the tastes and preferences of foreign consumers. Secondly, the project will study how large multinational retailers affect the export competitiveness of host country firms, evaluated in terms of their export volume, export destination, and export diversification and continuity.

Find out more:

Cheptea A., Emlinger C., Latouche K. (2013). Multinational retailers and home country food exports. *American Journal of Agricultural Economics*.

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Decision-making assistance

Biofuel impact assessment

A market and trade model of field crop commodities (MATSIM-LUCA), using a detailed specification of production technologies, was designed to assess the impacts of biofuel development on crop yields and acreage. The model shows that, for the same amount of energy in oil equivalent, **the land use change induced by biodiesel is slightly higher than the land use change induced by ethanol**. The model was developed by the Scientific Interest Group on land use change (GIS CAS for *Changement d'Affectation des Sols*) created by INRA, the French Environment and Energy Management Agency (*Agence de l'Environnement et de la Maîtrise de l'Energie*, ADEME) and two French ministries (Agriculture and Environment) in order to further examine the land use change brought about in France by various factors, including biofuel development.

Find out more:

Forslund A., *et al.* (2013). Évaluation des effets du développement des biocarburants en France sur les marchés nationaux et internationaux des grandes cultures et sur le changement d'affectation des sols : une analyse avec le modèle MATSIM-LUCA. *Rapport final pour l'ADEME*.

Forslund A., *et al.* (2013). Biodiesel vs. ethanol, EU vs. US biofuels: So different in terms of LUC impact? *7èmes Journées de Recherche en Sciences Sociales*, Angers (France).

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Research findings

Biofuels and Greenhouse Gas Emissions

Public support for biofuel production and consumption is highly disputed in both the US and the EU. Many studies quantify the significant land use changes induced and associated greenhouse gas emissions. Yet because these impacts cannot be directly observed, quantification relies on economic models that themselves apply some parameters that are also not directly observable. Our analysis shows that **the parameters used to calibrate yield responses have critical impacts on land use change findings**. We find that some influential studies underestimate yield changes following biofuel development and consequently overestimate the land use change and associated emissions.

Find out more:

Gohin A. (forthcoming). Assessing the land-use changes and greenhouse gas emissions of biofuels: Elucidating the crop yield effects. *Land Economics*.

Gohin A. (2014). Le biodiésel émet-il beaucoup de gaz à effet de serre ? *Revue Française d'Économie*. 28(3): 165-212.

Gohin A. (2013). The land use changes of European biodiesel: Sensitivity to crop yield evolutions. *Working Paper SMART-LERECO No. 13-13*.

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Decision-making assistance

Productivity and competitiveness of organic farming

The French Commissariat Général à la Stratégie et à la Prospective (CGSP) asked INRA to conduct a study to assess possible French agriculture pathways to highly sustainable production systems. The initial objective was twofold: **how to increase the productivity and competitiveness of organic farming**, and how to manage and

organise the transition from conventional farming to more sustainable agriculture. SMART-LERECO actively contributed to the first focus, undertaking an extensive review of international literature on the comparative economic performances of organic and conventional farms, conducting related empirical analyses of French organic farms, and carrying out a web-survey on the competitiveness of organic sectors in France.

Find out more:

INRA (2013). *Vers des Agricultures à Haute Performance* : (http://tinyurl.com/oxcjxja)

Latruffe L., *et al.* (2013). Vol. 1, partie I, chap. 3. Revue de littérature et avis d'experts sur les performances de l'Agriculture Biologique : performances économiques.

Latruffe L., *et al.* (2013). Vol. 1, partie II. Analyses empiriques de la productivité et de la rentabilité en AB en France.

Desjeux Y., *et al.* (2013). Vol. 1, partie III. Analyse de la compétitivité de la filière biologique.

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Knowledge transfer

Conference on agro-ecology

SMART-LERECO's contribution to a national INRA conference on the scientific bases of agro-ecology in October 2013 showed that ecosystem services and technical resources can be complementary or substitutes in the agricultural production function. **While farmers can choose and fine-tune their technical resources, including crop sequences and use of pesticides, they cannot do the same with the ecosystem services** which also contribute to the regulation of pests and pollination. Firstly, they only have limited knowledge and relatively few reliable tools available to control them. Secondly, these productive ecosystem services partially or totally depend on other farmers, foresters, individuals and communities managing the relevant beehives and natural habitats. Given that these other land managers are not paid by the beneficiary farmer, they have no reason to maintain or improve the ecosystem services they provide. It is therefore essential to gain a better understanding of the flows of ecosystem services and the economic values that the different agents placed on them in order to improve their production conditions.

Find out more:

https://colloque.inra.fr/agro_ecologie_recherche

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Research findings

Conversion to organic farming

An analysis of crop farms' business and bookkeeping data covering the period from 1999 to 2007 highlights that **farmers' technical efficiency (TE) before conversion is a significant driver in the decision to convert to organic farming**. Among small farms, the probability of conversion is higher for those with a lower TE rate, irrespective of the type of crop specialisation. However, among large farms, the probability is higher for highly efficient farms. In addition, a large-scale survey of dairy farmers in the French regions of Brittany and Pays de Loire in 2011-2012 shows that technical reasons and, to a lesser extent, ideological reasons, are key drivers in conversion to organic farming. By contrast, a similar survey of vegetable farmers in Brittany finds that economic reasons are the main driver behind conversion.

Find out more:

Latruffe L., Nauges C. (forthcoming). Technical efficiency and conversion to organic farming: The case of France. *European Review of Agricultural Economics*.

Latruffe L., *et al.* (2013). Freins et incitations au développement de l'agriculture biologique en France. *INRA Sciences Sociales 4/2013*.

Latruffe L., Nauges C., Desjeux Y. (2013). Le rôle des facteurs économiques dans la décision de conversion à l'agriculture biologique. *Innovations Agronomiques* 32: 259-269.

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Decision-making assistance

Common Agricultural Policy reform and the redistribution of support

Under the principle of subsidiarity, the political agreement on the Common Agricultural Policy (CAP) reform signed in June 2013 leaves Member States a great deal of leeway to shift direct payments granted to farmers. As announced by the French President in October 2013, **the main national decisions should result in the redistribution of first pillar direct payments** from lowland areas to disadvantaged areas and from grain and intensive cattle breeding farms to farms with extensive cattle production. At least four optional decisions can be made to transfer subsidies among farm categories: convergence of decoupled direct payments per hectare at national level (and not at regional level); a higher level of direct payments for the first hectares; redistribution of support from the first pillar of the CAP to the second pillar; and new coupled direct payments.

Find out more:

Chatellier V. (2013). Les effets redistributifs des décisions françaises relatives à la PAC post 2015. *Séance de l'Académie d'Agriculture de France « Future PAC et loi d'avenir agricole : enjeux et perspectives pour la France »*, Paris (France).

Chatellier V., Guyomard H. (2013). The first pillar direct payments in the next CAP (post 2015). A French point of view. *New Medit.* 12(3): 11-19.

Chatellier V., Guyomard H. (2013). La réforme de la PAC post 2013 et les soutiens directs du pilier I. *Rapports pour l'Association des Régions de France et pour le Pôle animal de Coop de France*.

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Research findings

Common Agricultural Policy

A survey of the intentions of 291 French farmers in two French regions (Centre and Midi-Pyrénées) was carried out in connection with the reform of the Common Agricultural Policy (CAP) in the European Union. The survey focused on **farmers' intentions to continue farming should the CAP be axed in 2014**. This scenario would bring about no major change for 66% of the respondents. However, some 21% of respondents who said they would remain in farming if the CAP continued also said they would exit the farming sector if the CAP were scrapped. Dairy and beef farmers and farmers in more disadvantaged areas are more likely to want to exit if the CAP is axed whereas they would not do so should the CAP stay in place.

Find out more:

Latruffe L., Dupuy A., Desjeux Y. (2013). What would farmers' strategies be in a no-CAP situation? An illustration from two regions in France. *Journal of Rural Studies.* 32: 10-25.

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Research findings

Agricultural prices and food industry trends

Given that primary agricultural commodity productivity gains were transferred to the food industry in the form of lower input prices from the early 1900s to 2006, this drop in relative agricultural prices might be expected to enable all food processing firms to increase their sales and encourage the entry of new firms. However, we show that **falling input prices force less productive firms to exit the market, and lead to the expansion of more efficient incumbents at the expense of less productive producers.** As the cost share of intermediate inputs increases with labour productivity, the most productive (larger) incumbents are able to reduce their prices more than less productive firms. This gives rise to the reallocation of market share from low-productivity firms to high-productivity firms. Our framework supports some well-established empirical results on the food processing industry. Indeed, agricultural prices fell from the early 1900s to 2006 as the food industry became more concentrated and average productivity rose.

Find out more:

Gaigné C., LeMener L. (forthcoming). Agricultural prices, selection, and the evolution of food industry. *American Journal of Agricultural Economics*.

Chevassus E., Gaigné C., LeMener L. (2013). Does input trade liberalization boost downstream firms' exports? Theory and firm level evidence. *Journal of International Economics.* 90(2): 391-402.

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Decision-making assistance

Mitigation of greenhouse gas emissions

Ten major actions could be taken to significantly reduce greenhouse gas emissions in the agricultural sector by 2030. Such is the conclusion reached by an INRA study for the French Ministry of Agriculture and the French Environment and Energy Management Agency (ADEME) despite a cautious approach that probably underestimates actual mitigation potential. The ten actions considered are purely technical do not challenge current production systems, their location and production levels. In two-thirds of the actions studied, the mitigation potential can be accomplished at a low technical cost of less than €25 per tonne of CO2 equivalent of avoided emissions, including "negative" cost cases where implementing the recommended actions would be beneficial to farmers. Why, then, have these farmers not already voluntarily carried out such actions? One of the explanations is the presence of not-inconsiderable transaction costs, which SMART-LERECO has estimated in this study with the conclusion that transaction costs should be taken into account when designing recommended actions in order to ensure their adoption.

Find out more:

http://tinyurl.com/pwo46h4

Pellerin S., *et al.* (2013). Quelle contribution de l'agriculture française à la réduction des émissions de gaz à effet de serre ? Potentiel d'atténuation et coût de dix actions techniques. *Synthèse du rapport d'étude pour l'ADEME, le MAAF et le MEDDE*, INRA, Paris (France).

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Knowledge transfer

In-house training in agricultural economics

Within the partnership between the French agricultural social security body (Mutualité Sociale Agricole, MSA) and INRA, SMART-LERECO has developed **an induction course in agricultural economics** in association with the in-house training department at Agrocampus Ouest. Staff from MSA Head Office in Paris took the first two-day course in November 2013. The course starts with a lecture on the main economic analysis concepts before going on to present the farming sector's particularities and place French agriculture in the European and world agricultural contexts as well as in the French economy as a whole. Regulations key to the agricultural sector are then studied with an introduction to the EU's Common Agricultural Policy (CAP) and the World Trade Organization (WTO) and an overview of the main public, professional and non-governmental institutions involved in this governance.

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