

Research Highlights 2011



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.).

Decision-making assistance

Citation analysis

Citation analyses have to factor in normalization by scientific field due to the variability in referencing behaviour from one scientific field to the next. This study proposes a **new general source-level normalization method based on the propensity to cite**, which neutralises the main cause of disciplinary impact variability, the uneven propensity to cite, without using arbitrary definitions. The proposed model decomposes the traditional Garfield impact factor (ISI – Thomson Reuters), showing its dependence on the propensity to cite in the field, on the growth of the field in the citation window, and on imports/exports between fields..

Find out more:

Zitt M. (2011). Behind citing-side normalization of citations: some properties of the journal impact factor, *Scientometrics* 89(1).

Contact : michel.zitt@nantes.inra.fr

Research findings

Agri-food markets

French agricultural and agri-food product exporters’ access to European markets was studied based on recent international economic developments, which place the firm at the centre of the analysis. The purpose here was 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. The results obtained from accounting data on French agri-food firms and their exports show that European markets are still heterogeneous, due as much to geographic market conditions (market distance or size) as to entry costs to these markets.

Find out more:

Chevassus-Lozza E., Latouche K. (2011). Firms, markets and trade costs: access of French exporters to European agri-food markets. *European Review of Agricultural Economics* 39(2).

Contact : karine.latouche@nantes.inra.fr

Research findings

Trade liberalization

L. Le Mener defended his PhD thesis on 25 November 2011. His work addresses **the impact of agricultural trade liberalization on agri-food firms**. The theoretical framework developed shows that agri-food firms are not all equal in the face of the liberalization of their input markets. The most productive firms benefit the most from this liberalization upstream. Less productive firms do less well and are driven to exit the different markets, whether export markets or their own domestic market. His empirical application demonstrates that the liberalization of input trade on entry to the European Union has effectively driven the least productive French agri-food firms out of the export markets. Although the liberalization of the agricultural markets has reduced production costs for agri-food firms, firms do not all respond to this reduction in the same way. Therefore, the liberalization of the agricultural sector has prompted a concentration of market shares in the hands of the most productive firms at the expense of the least productive firms.

Find out more:

Le Mener L. (2011). Biens intermédiaires et commerce international avec firmes hétérogènes : développements théoriques et application au secteur agroalimentaire français. *PhD thesis in economic sciences. DEGEST Doctoral School.*

Contact : leo.le-mener@nantes.inra.fr

Research programme

Regional Development

In the third wave of programmes “**For and On Regional Development**”, PSDR-GO is the only interregional programme to involve the French National Institute for Agricultural Research (INRA), the National Research Institute of Science and Technology for Environment and Agriculture (IRSTEA) and the four western regions of Basse-Normandie, Bretagne, Pays-de-la-Loire and Poitou-Charentes. It also boasts an open line of research collaborations with the French National Centre for Scientific Research (CNRS) and the universities, a comparatively strong technical sciences component and relatively large projects (nine projects with over €4 million in funding, excluding permanent staff and PhD theses). Four SMART-LERECO staff constituted the PSDR-GO Steering and Management Unit. The networks of researchers built have defined new questions and new ways of addressing questions, formed new partnerships, and contributed to new interregional projects and international networks. The networks of stakeholders-researchers have expanded the fields of study, held think tanks on defining study coverage and scale changes, driven the emergence of new projects, and held ground-breaking meetings with socioeconomic players.

Find out more: <http://www.psdrgo.org/psdrgo>

Contact : emmanuelle.chevassus-lozza@agrocampus-ouest.fr and pierre.dupraz@rennes.inra.fr

Research findings

Dairy farmers' strategies

The cross effects of phasing out milk quotas, price variations and decoupling direct payments on the **productive strategies of French dairy farmers** was studied by building a bio-economic model incorporating the economic risk associated with the price volatility of inputs and agricultural products, and taking into account a set of regulatory, structural, zootechnical, agronomic and environmental constraints. The model was applied to four types of dairy farms reflecting the diversity of production systems in the West of France. The simulations show that French dairy farms have strong production growth potential, but that a volume increase implies farming system intensification, which could have negative impacts on the environment.

Find out more:

Lelyon B., Chatellier V., Daniel K. (2011). Phasing out milk quotas: a bio-economic model to analyse the impact on French dairy farms. *In: The Common Agricultural Policy after the Fishler reform*. Editions Publishing Limited (Angleterre).

Lelyon B., Chatellier V., Daniel K. (2011). The impact of decoupling and price variation on dairy farmers' strategy. *In: Disaggregated impacts of CAP reforms*. Editions OCDE (France).

Lelyon B., Chatellier V., Daniel K. (2011). Decoupling and prices: determinant of dairy farmers' choices? *Review of Agricultural and Environmental Studies* 92(1).

Contact : vincent.chatellier@nantes.inra.fr

Research findings

Livestock concentration

Environmental regulations can potentially put a brake on the **geographic concentration of intensive livestock farming, especially pig farming**. However, they could equally prompt producers to make technological changes to either reduce their effluents or cut down their land application of manure in favour of manure treatment. Such changes consequently tend to increase the agglomeration of production. The study shows that, although environmental constraints and regulations should, where technology remains unchanged, trigger a dispersion of production, the introduction of the European Nitrates Directive has actually prompted pig farmers to change their effluent management technology. This is tending to drive up the agglomeration of production rather than disperse it..

Find out more:

Gaigné C., Le Gallo J., Larue S., Schmitt B. (2012). Does Regulation of Manure Land Application Work Against Agglomeration Economies? Theory and Evidence from the French Hog Sector. *American Journal of Agricultural Economics* 94(1).

Contact : carl.gaigne@rennes.inra.fr

Knowledge transfer

Agricultural demographics

A study of **the developments in the number and size of French commercial farms** was presented to the "Labour in the Farming Sector" meeting held by the French National Institute for Agricultural Research (INRA) at the Paris International Agricultural Show in February 2011. Preliminary findings estimate the number of farms at between 256,000 and 262,200 by 2020. This places growth at -1.8% per year, pointing to a slowdown in the farm decrease compared with the rate observed in recent decades (-3.0% per year from 1990 to 2000, and -2.1% per year from 2000 to 2010).

Contact : laurent.piet@rennes.inra.fr

Decision-making assistance

Food industry locations

A sample of 27 food firms in the Great Western area of France were interviewed about their **location decisions in the poultry and ready-made meals sectors**. The findings show that, in both sectors, business location was originally based essentially on supply channels. Over the last decade, location decisions have become more complex as the globalisation of trade and new technologies have opened new windows for firms. Specialised agri-food clusters in the Brittany and Pays-de-la-Loire regions play a key role in manufacturers' decisions to stay in the area. However, isolated firms in rural areas such as Lower Normandy and Poitou-Charentes are at a disadvantage. Long-term location is reported to be based on four complementary and non-exclusive pillars: know-how, local speciality produce considerations, an agriculture-food link and a network of professionals.

Find out more:

Bagoulla, C., Chevassus-Lozza, E., Daniel, K., Gaigné, C., Lambert, A., Persillet, V. (2011). Augmentation des importations : menace ou opportunité pour les firmes agro-alimentaires du Grand Ouest ? *La revue de l'observatoire des IAA de Bretagne* 103.

Contact : vanesa.persillet@nantes.inra.fr

Research findings

Animal health risks

Epidemics have huge impacts on the livestock sectors and related industries. **The macroeconomic repercussions of a hypothetical outbreak of food and mouth disease** on a livestock-intensive region such as Brittany were studied using an original general equilibrium model to identify the dynamic and multi-sector impacts. The simulation of a scenario involving massive preventive culling (10% of livestock) and movement restrictions on animals shows that, although the livestock farmers directly hit by the disease are obviously penalised, the other livestock farmers temporarily benefit from a slight price increase in animal products. All in all, although Brittany's agricultural income falls some 2% during the outbreak year, the downstream industries lose out more with a drop of over 16% for the slaughterhouses, which do not see any positive net price effects. The costs do not immediately disappear with the end of the outbreak. They are actually found to be even higher the following year. They subsequently stabilise fairly quickly and generally bring about a return to the pre-outbreak situation for the dairy sector, but a sharp downturn in suckler livestock and the slaughterhouse business.

Find out more:

Gohin A., Rault A. (2011). Assessing the economic costs of a Foot and Mouth Disease outbreak on Brittany: A dynamic computable general equilibrium analysis. *Présentation aux 5èmes Journées INRA-SFER-CIRAD*, Dijon (France).

Contact : alexandre.gohin@rennes.inra.fr

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Pierre Dupraz (SMART) and Vincent Chatellier (LERECO)

Editors-in-Chief

Laure Latruffe and Laurent Piet

http://www.rennes.inra.fr/smart_eng

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