

## Ph-D position, Le Mans University

**Subject:** Economic Impact of Ageing

**Duration:** 3 years, Le Mans (France)

### Supervisors

X. Fairise  
Professor of Economics  
GAINS-TEPP (FR-CNRS 3435), Le Mans University  
Institut du Risque et de l'Assurance du Mans

A. Popier  
ass. Pr of Mathematics  
LMM, Le Mans University

### Subject

The aging of the population in most developed countries has a considerable impact on the savings choices of economic agents. The current system of social protection, and more specifically the PAYG system, risks becoming unsustainable in the context of a weak economic growth characterized by secular stagnation. The scenario of secular stagnation, if it is not certain, has to be considered. To ensure a complementary retirement, economic agents will be encouraged to increase their savings and more specifically to make long-term investments, providing additional income at the time of retirement. This increase in private household savings is likely to generate low interest rates over the long term. This raises questions the ability of central banks to use monetary policy, via lower interest rates, to stimulate the economy in the event of a major recession.

The aim of the thesis is to construct general equilibrium models taking into account 1) different demographic scenarios, 2) changes in public debt, and 3) integrating different institutional characteristics of European economies (imperfections in labor markets and goods). The next step is to assess the ability of monetary policies to stabilize the economy. A second step will consist in proposing complementary or substitution, budgetary or fiscal policies and in giving a quantitative evaluation.

The study will be conducted with dynamic models of general equilibrium in continuous time and will use the methodology developed by Achdou et al. (2017). It will be necessary to highlight the different demographic scenarios and to model the agents' savings choices with possible consideration of wealth inequalities (heterogeneous agents). It will then be a question of modeling monetary policy (Taylor's rule) and of considering various budgetary and fiscal instruments to correct excess savings. The aim is also to produce analytical results allowing to characterize in particular the saving behaviors of the agents or the asymptotic distribution of the richness of the agents.

### References

- Kaplan, G., Moll, B., and Violante, G. «Monetary Policy According to HANK», Mimeo, 2017.
- Carvalho, C., Ferrero, A. and Nechio, F. «Demographics and Real Interest Rates: Inspecting the Mechanism», FEDERAL RESERVE BANK OF SAN FRANCISCO WORKING PAPER SERIES, Working Paper 2016-05.
- Carvalho, C. and Ferrero, A. «Monetary Policy and the Demographic Transition», Mimeo, 2012.
- De Nardi, M., Imrohorglu, S., and Sargent, T., « Project US Demographics and Social Security », Review of Economic Dynamics, 1999.
- Achdou, Y., Han, J., Lasry, J\_M., Lions, J-M.,and Moll,B. « Income and Wealth Distribution in Macroeconomics: A Continuous-Time Approach, » NBER Working Papers 23732, National Bureau of Economic Research, Inc, 2017

### The team GAINS

The scientific strategy of the GAINS is based on two axes.

**Axis 1: Evaluation of public employment policies**

The objective is the development of new theoretical and quantitative tools to contribute to the debate on the effectiveness of public policies, and more particularly those related to employment (reforms of labor market institutions, taxation or training). This research meets the demands of the public authorities and is rooted in controversial issues, both at the theoretical and applied level. The GAINS team is part of the TEPP Federation (CNRS).

**Axis 2: Risk, insurance and social protection**

The objective is to study the behavior of economic agents in presence of uncertainty. Two dimensions are favored: (i) the perception and coverage of risks; (ii) the management of occupational risks. This research responds to a strong social demand around social protection systems, such as retirement, health insurance, or unemployment insurance. The problem of risks (of different natures) and their management occupy an increasing place in contemporary economies.

The GAINS is part of the Institute of Risk and Insurance of Le Mans (founded jointly with the Mathematics department and the Law department).

For any extra information: [xavier.fairise@univ-lemans.fr](mailto:xavier.fairise@univ-lemans.fr) .

**Application**

Please send

- your CV,
- a description of your MASTER courses, with your results, projects and master dissertation,
- letters of recommendation.

before **June 30th 2019 23h59**

Pre-selected candidates will be auditioned in le Mans on **July 9th 2019**.