

ALLOCATION DE THESE

PhD Subject : Inégalités de salaire, d'emploi et de richesse et crise de la Covid-19 : quelles différences entre Etats-Unis et Europe ?

GAINS
Laboratoire de recherche
en Économie
Le Mans Université

Duration : 3 ans

Direction:

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The Covid-19 crisis has severely slowed down economic activity, leading many individuals to lose their jobs, in particular in the United States, or their salaries in France with the strong use of short-time work . But consumption restrictions have also strongly rise savings. Thus the distribution of wealth has certainly been greatly modified. It is essential to properly analyze these phenomena because the speed of the recovery depends on them. It is therefore necessary to carry out econometric work to measure the evolution of inequalities in labor income and financial wealth. On the basis of these facts, a model can be calibrated to analyze the determinants of the duration of the recovery and to contrast the European and American experiences.

Scientific objective

The great majority of DSGE models are limited to the study of the so-called "representative" agent, which does not make it possible to understand the impact of policies on inequalities, or the differentiated impacts of an untargeted macroeconomic policy. These models were challenged during the 2008 crisis which "exhausted" traditional monetary policy instruments once interest rates hit their lower bound (Zero Lower Bound, ZLB). This financial crisis, as well as that of the Covid-19, will also exacerbate economic inequalities, pushing certain agents into poverty after they have spent all their savings (financially constrained agents). The DSGE models then underwent strong criticism insofar as they do not allow us to account for these phases of the economic cycle characterized by low interest rate and low inflation, which are nevertheless present in the data. Kaplan, Moll, Violante (2018) are the first to analyze the impacts of macroeconomic policies within a DSGE model with heterogeneous agents, which can therefore account for the dynamics of inequalities during major crises.

These "old" macroeconomic models with "representative agent" are therefore experiencing a notable revolution, with the introduction of heterogeneous agents in line with the early work of Aiyagari (1994). The notion of "representative agent" must gradually be abandoned: in a new framework with heterogeneous agents, there is then a multitude of consumption functions because agents can no longer insure themselves perfectly against idiosyncratic risks, such as job losses or, more generally different incomes. The seminal study by Kaplan et al. (2018) analyzes the impact of monetary policy and shows that the transmission channels of these macroeconomic interventions change when the heterogeneity among individuals is taken into account. At the methodological level, this PhD project will also shown that taking into account the heterogeneity of agents, and especially their mobility over time in the wealth distribution, generates problems of dimensionality of the model that economists must now solve.

This review of the literature allows us to glimpse three potential avenues for improvement in the DSGE paradigm: the incorporation of heterogeneity in order to account for the dynamics of inequalities and the inclusion of the ZLB.

Provisional program, expected results and valuation

This thesis will seek to develop, via the writing of Jupyter Notebook in R, a method for constructing indicators of change in inequality from surveys conducted among American and European households, in the line the work of Kuhn & Ríos-Rull (2015). These statistical indicators will be based on measures of income and wealth. The use of different inequality measures will allow us to analyze the changes in the distributions of these variables across time. The analysis of financial data will be carried out, for the United States, for the years 1989, 1995, 2001 (after the stock market crash), 2004, 2007 (before the sub-prime crisis), 2010 (after the financial crisis), sub-prime), 2013, 2016 and 2019, pending the survey for 2022.

Then, it will be necessary to build a heterogeneous agent model making it possible to analyze the main public interventions during the last two major crises. Indeed, we must not lose sight of the fact that in a society, the solution can only be collective, thus pushing to study all the economic interactions and the coherence of all private and public decisions. However, the economic advisers and political decision-makers (in national ministries and international organizations) do not use quantitative tools that take into account the redistributive concerns of the populations. Indeed, the prediction of the redistributive effect of any policy requires the use of large models which capture the heterogeneity observed in the population (in terms of income, professional situation, savings, etc.). This PhD thesis aims to fill this gap.

Bibliographical references

Aiyagari, S. R. 1994. Uninsured idiosyncratic risk and aggregate saving, *Quarterly Journal of Economics*, 109(3): 659–684.

Kaplan, G., B. Moll et G.L. Violante. 2018. Monetary Policy According to HANK, *American Economic Review*, 108, pp. 697-743.

Kuhn, M., Rios-Rull, J. V. (2016). 2013 Update on the US earnings, income, and wealth distributional facts: A View from Macroeconomics. Federal Reserve Bank of Minneapolis Quarterly Review, 37(1), 2-73.

Expected scientific impacts:

Solving and reconciling these models with the data is very difficult and computationally heavy. Without appropriate tools to simultaneously quantify macroeconomic fluctuations and inequality dynamics (hiding behind the evolution of these aggregates), economists cannot provide policy makers with clear policy recommendations on redistribution policies and macroeconomic performance.

This PhD thesis is part of the collaborations already initiated between researchers from GAINS (Le Mans) and GRANEM (Angers) on the economic analysis of the impact of the Covid-19 crisis (see the papers of Blondel, Langot *et al.* for example) and of the impact of environmental policies on employment (see work by Messe, Chebbi and Pautrel).

It also strengthens the pole working on the renewal of economic cycle analysis methods. It thus strengthens the GAINS team working in collaboration with the Dynare Team (Cepremap, ENS-Paris), a well-known software in macroeconomic modeling, used in the academic world (universities and research), institutions (IMF, ECB, ...) and businesses (Banks). In recent years, Dynare has been downloaded 60,000 times / year. Contributing to the development of Dynare will be also a contribution of this thesis work.

It will also make it possible to continue the momentum initiated by the PANORisk contract around the evaluation of economic policies to regulate the risks associated with major crises.

Host teams and working environment

Recruitment takes place within the framework of the EDGE doctoral school (Angers University site): <https://edge.doctorat-bretagne.fr/>

The thesis is funded by Le Mans University and the University of Angers.

The two host laboratories are:

GAINS, Le Mans University : <http://gains.univ-lemans.fr>

The scientific strategy of the GAINS Economics Laboratory is based on 2 axes: the evaluation of public employment policies on the one hand, risk, decisions under uncertainty, insurance and social security systems on the other. It also includes a transversal axis in Econometrics and numerical methods.

GAINS is one of the founding members of the TEPP federation (FR CNRS 2042), a founding member of the Institute of Risk and Insurance (IRA, Le Mans) in collaboration with the Mathematicians of the Laboratoire Manceau de Mathématiques (LMM). Finally, GAINS is one of the founding members of the Search & Matching (SAM) network and has participated in the “International Longevity Economy” network of the “Demographic Transition, Economic Transition” chair (Fondation du Risque - Institut Louis Bachelier) since 2017.

GRANEM, university of Angers : <http://granem.univ-angers.fr/fr/presentation/presentation.html>

GRANEM (ANgevin Research Group in Economics and Management) is a multidisciplinary research team (economics and management) from the University of Angers, attached to the CNRS Federation n°2042 TEPP. This team brings together (in January 2021) 54 teacher-researchers, 43 doctoral students, and 4 BIATSS. The laboratory's scientific strategy revolves around 3 axes: (i) Food, Environmental and Organizational Challenges, (ii) Tourism, Culture and Digital Issues, and (iii) Strategic Mutations, Risks and Financial Sustainability.

GRANEM has been a member of the TEPP federation (FR CNRS 2042) since 2018 and participates in the “International Longevity Economy” network of the “Demographic Transition, Economic Transition” chair (Risk Foundation - Louis Bachelier Institute) since 2019.

The doctoral student will benefit from a doctoral contract which is a fixed-term employment contract of 3 years, funded at 100%. It allows its holder to devote himself fully and exclusively to his research work for the preparation of his thesis. The thesis will start in September or October 2021.

Application

The application will include:

- a CV,
- the description of the courses followed in master,
- master's notes,
- the master's thesis and projects,
- letters of recommendation.

For any further information: francois.langot@univ-lemans.fr and xavier.pautrel@univ-angers.fr

Deadline for submitting applications: June 01, 2021

Following the examination of all the applications by the selection committee, the pre-selected candidates will be auditioned by videoconference or face-to-face at Le Mans if sanitary conditions allow it.